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AN ASSESSMENT PROCEDURE TO DETERMINE THE EFFECTIVENESS OF INDIVIDUALIZED INSTRUCTION APPROACHES IN TECHNICAL INSTITUTES AND COMMUNITY COLLEGES IN NORTH CAROLINA

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INTRODUCTION

Considerable emphasis has been placed on individualizing instruction to meet the varied needs of students enrolled in the North Carolina Technical Institute/Community College System. Despite the large amounts of money that have been allocated to develop individualized instruction approaches in North Carolina, evaluative data concerning the effectiveness of these approaches are lacking. Systematic program evaluation can serve as an aid in developing individualized instruction approaches, as a basis for making judgments with respect to these approaches, and as an essential tool for educational decision makers.

The term individualized instruction has been widely used but a uniform definition was not apparent in the literature. One of the major difficulties in dealing with the concept of individualized instruction is that a number of aspects of the teaching-learning process may be individualized. In addition, the degree to which each aspect is individualized varies from one system of individualizing instruction to another. Thus, it was apparent that some means of describing programs which are called "individualized" was a necessary step in the process of determining the effectiveness of such programs at the post-secondary level in North Carolina.

A variety of means have been used to assess the effectiveness of educational programs. Lambrecht (1972) used the critical incident technique and student achievement data to determine adequacy of programs; whereas, Bailek and Castro (1969) concentrated on student attitudes, teacher and student activity and interaction, and student achievement. The program plan, the operating program, the school context, pupil behavior, teacher behavior,

and unplanned influences were the areas Lindvall and Cox (1969) discussed as a part of their approach to evaluation. Hardebeck, Ashbaugh, and McIntyre (1974) were concerned with the comparison of observations of teachers by trained observers and self-reported estimates of their individualization of instruction. In these and other similar studies, procedures had been developed that were unique to a particular situation. No evaluation model had been developed which could be used to assess a variety of types of individualized programs. Therefore, the need for a model, evaluative measures, and guidelines which could be used by educational decision makers in North Carolina to assess the effectiveness of the individualized instruction approaches was apparent.

Objectives

The specific objectives of this study were to:

1. Identify aspects of the occupational education programs in the technical institutes and community colleges of North Carolina which have been individualized.
2. Determine the degree to which individualization has been implemented in each institution.
3. Develop a model, evaluative measures, and guidelines for assessing the effectiveness of instructional approaches used to meet the individual needs of students.
4. Disseminate model, evaluative measures, and guidelines developed to assess the effectiveness of individualized approaches used in occupational education programs in technical institutes and community colleges.

Assumptions and Limitations

It was assumed that the specific instructors from whom data were collected were representative of occupational education instructors who individualized instruction. Further, it was assumed that the instrument utilized in the study provided valid and reliable data.

The study was limited to occupational education instructors in community colleges/technical institutes in North Carolina who individualized instruction. The model, evaluative measures, and guidelines were field tested by a limited number of instructors in two technical institutes.

Definitions

For reasons of clarity, terms used in this study were defined as follows:

Educational assessment. The process of delineating information needs, planning for data collection, obtaining information, and providing information for decision making.

Evaluation. A term used synonymously with "assessment".

Individualized instruction. A process which involves adapting instructional procedures to fit each student's individualized needs so as to maximize his learning and development. Among characteristics of a highly individualized program are the following:

1. Instruction is designed for individual students rather than for the entire class.
2. Students work at their own rate of speed.
3. Each student performs learning activities when and where he chooses.

4. Students play an important role in determining their own instructional programs.
5. Each student is placed in a learning sequence according to his learning readiness.
6. Students may choose from a variety of learning activities, materials, and media to achieve each objective.
7. More teacher time is spent working with individuals and small groups than lecturing or presenting information to the entire class.
8. Diagnostic methods are frequently used to determine learning difficulties.
9. Emphasis in evaluation is on mastery of objectives by each student.

Occupational education. Education which provides for the development of skills, attitudes, and knowledge that will enable individuals to enter or make progress in their chosen vocations or occupations.

Model. A systematic approach to be used by evaluators in planning, obtaining, and providing information to help decision makers make choices.

Evaluative measures. Suggested means for use in obtaining data.

Guidelines. Directions which explain and clarify how the various tasks prescribed in the assessment model are to be conducted.

REVIEW OF LITERATURE

The major purpose of this study was to develop a model, evaluative measures, and guidelines for use in assessing individualized instruction approaches in occupational education at the community college/technical institute level. The review of literature focused on descriptions of individualized instruction, the role of evaluation, models for use in assessing the effectiveness of instruction, and evaluative measures used to assess individualized instruction approaches.

Descriptions of Individualized Instruction

Before a study of individualized occupational education classes could be conducted, it was necessary to develop a means of differentiating between classes which were being individualized and those which were being taught by traditional instructional approaches. Most authorities agreed that individualization was a new concept incorporated into the total educational process. Gibbons (1971) stated that it was a liberal movement in education. The spectrum of programs embraced by the movement began with improvements in mass teaching methods and shifted to a concentration on small group activities, adaptation of subject matter to the individual, and finally to emancipation of the student from the constraints of education planned by others. Gronlund (1974) defined individualized instruction as a process which involves adapting instructional procedures to fit each student's individual needs so as to maximize his learning and development. There appeared to be at least five basic components within the total framework of individualized instruction, according to Finch (1974). These included the

student, the environment, the teacher (and instructional strategies), instructional content, and media of which the student was the prime concern.

Characteristics unique to individualized instruction identified in the literature were:

1. Instruction is designed for the individual student. Programs of study and day-to-day lessons are designed to meet his learning requirements (Southworth, 1973).

2. Each student is encouraged to proceed through his program of study according to his own personal abilities, needs, and interests. Self-pacing is given primary consideration (Esbensen, 1973). At any given time, students are at different points in their progress along a single continuum (Unruh and Alexander, 1969).

3. Each student has a major part in the selection of the objectives, materials, procedures, and time for learning. In a highly individualized system, the teacher, the school, and the community make most of the decisions about how it will be achieved (Mager, in Esbensen, 1968).

4. Each student moves freely about the school, talks with others, and does whatever is necessary, with the teacher's approval, to attain the objectives (McQueen, 1971).

5. Each student may choose from a variety of learning activities, materials, and media to achieve the objectives since individualized instruction provides for alternative instructional methods and/or learning resources (Robinson, 1974).

6. Each student is placed in a learning sequence according to his learning readiness, levels of ability, and differences of learning rate (Lewis, 1971).

7. The teacher spends more time answering questions of individual pupils and working with small groups of students than lecturing to a class. Emphasis is placed upon reinforcing behaviors appropriate for each student, diagnosing learning difficulties, evaluating progress, prescribing appropriate learning activities, and helping students individually (McQueen, 1971).

8. Performance is measured according to the attainment of objectives rather than comparing performance with that of other students (McQueen, 1971). Emphasis in evaluation is on mastery of objectives. It is assumed that every student can achieve mastery if given enough time (Gronlund, 1974).

9. Each student's progress is measured frequently by means of a well developed plan for evaluation. Individual abilities and accomplishments are evaluated in order to adapt instruction to meet individual needs (Glaser, in Howes, ed., 1970).

Role of Evaluation

Before a model of evaluation could be developed, the role of evaluation as it related to this study had to be clarified. Radcliffe (1972) indicated that the role of evaluation was to obtain and provide useful information for making educational decisions. In a study conducted by Abedor (1972), the role of evaluation was to correct educational system deficiencies. According to Luft, et. al. (1972), the role of evaluation was to provide administrators with an opportunity to maximize the identified terminal behaviors of educational programs. Roid (1972) defined the role of a course evaluation system as the examination of specific events in relation to specified standards for purposes of adaptive decision making. According to Stufflebeam, et. al.,

(1971) the role of evaluation was to provide useful information for judging decision alternatives. The latter definition was most relevant for this study.

Models Used to Assess the Effectiveness of Instruction

A search of current literature provided information related to general educational assessment models. A number of models were found which dealt only with specific components of a program, such as course evaluation and evaluations of learning packages. Only program assessment models are reported in this section.

The Quality Assurance Model for Process Evaluation was developed by Luft, et al. (1972). It provided different techniques for use by educational administrators in maximizing desired terminal behaviors. Application of the entire model involved the identification of teacher behaviors related to student success, assessment of student behaviors, and an analysis of relationships between the two.

Abedor (1972) reported the development and validation of a model for evaluating self-instructional multi-media learning systems. The model prescribed specific operations for tryout and revision of prototype multi-media self-instructional treatments including 35 mm slides, audio tape, a workbook, and film. A flow chart model was designed for developers of prototype instructional systems to use as a guide for planning the collection and analysis of information for purposes of correcting deficiencies.

An evaluation model was developed by Stufflebeam, et al. (1971) to provide information for decision making. The three units of activity within

the model were: 1) delineation of information needs, 2) plan for obtaining data, and 3) plan for providing information. Each unit was composed of a series of related tasks. Using the model, the evaluator could develop an evaluation design to provide needed information to reduce uncertainty in making a decision.

The rationale underlying the present study was the conviction that available models were inappropriate for assessing the effectiveness of individualized instruction approaches in occupational education. Some of the theoretical models were either too general for direct application to specific instructional approaches or, if specific, related to only one aspect of individualized instruction, usually instructional materials and/or equipment.

Evaluative Measures Used to Assess Individualized Instruction

A number of descriptive studies of individualized instruction were reviewed. Aspects of four reports proved to be useful in the development of instrumentation for determining degree of individualized instruction.

In a study sponsored by the Texas Education Agency in cooperation with the University of Texas at Austin (Heeney and Ashbaugh, 1973), a Descriptive Observation Record for Individualization of Instruction was developed by Harris and McIntyre. It included the following five areas: intra-class groupings, variety of materials, pupil autonomy, differentiated assignments, and tutoring. Later, the information was converted to numerical ratings on the Individualization of Instruction Inventory developed by Harris and Coody (1973).

In 1974, a second project was sponsored by the Texas Education Agency and the University of Texas at Austin (Hardebeck, Ashbaugh, and McIntyre) in

an effort to coorelate teacher responses on a self-report questionnaire form of the Individualization of Instruction Inventory with responses on an observer-completed form of the instrument. An attempt was also made to develop a set of factors for converting responses on self-report forms into scores which would be reasonable predictors of scores recorded by trained observers. Data were obtained by observing 345 vocational, academic, and special education teachers in elementary, junior high, and senior high schools. Each teacher who was observed also completed a self-report form. Aspects of instruction about which data were obtained included intra-class groupings, variety of materials, pupil autonomy, differentiated assignments, and tutoring. The instrument consisted of a list of 25 items, each to be rated by the respondent on a one to five scale according to the degree to which that aspect of instruction was individualized in the class for which he was responding. Major conclusions were as follows: 1) There was a general tendency for scores of teacher self-reports to be significantly higher than observations made by trained observers using the same instrument. 2) Teacher self-report scores could be converted by means of a set of factors into scores that would be reasonable predictors of those recorded by trained observers for the purpose of making generalizations and comparisons of large groups. Conversion factors would not be accurate, however, for obtaining individual statistics.

Svara (1972) conducted a survey of instructors at 30 community and junior colleges who claimed to be individualizing instruction in order to determine how their programs were operated. The instrument included the following ten aspects of instruction: objectives, time of study, location

of evaluation of student progress, degree of accomplishment, mode of learning, schedule of time of classes, location of media used, rate of student accomplishment, chronological evaluation of students, and subject matter content. Respondents were instructed to circle for each item one of the three descriptors which applied to their individualized class.

Gibbons (1971) designed a profile instrument for plotting graphically the characteristics of an individualized program of instruction. The instrument consisted of a chart which listed the ten aspects of instruction which could be individualized. Four degrees of individualization were defined for each aspect and arranged in order from the highest to the lowest degree. Each respondent was asked to select the degree to which each aspect of instruction was individualized in the program for which he was responding. After a degree had been marked for each aspect of instruction, the resulting ten points could be plotted to present a graphic picture of the overall individualization of the program. The instructional aspects measured by the instrument included materials for study, methods of studying materials, pace of study, activity, decision making, teaching focus, teaching function, teaching method, environment, and evaluation.

An additional purpose of the review of literature was the investigation of instruments used in gathering data for use in educational decision making. Various researchers have reported the development of instruments for use by students in rating instructors and evaluating courses. The Purdue Instructor and Course Appraisal (Derry, et al., 1974) and the Illinois Course Evaluation Questionnaire (CEQ) (Aleamoni, 1972) are two specific instruments developed for this purpose.

Realizing that traditional rating instruments can never satisfy everyone, Derry, et al., (1974) developed the CAFETERIA system of evaluation which uses the Purdue Instructor and Course Appraisal instrument for data collection. In this system, each instructor or evaluator selects from a catalog of rating scale items those that fit his needs. To these selected items, a standardized and non-optional "core" of five items is automatically added. In other words, the instructor or evaluator shops for a match between characteristics of the course to be evaluated -- its focus, content style and goals -- and of the items by which the course is then evaluated.

The Illinois CEQ has been carefully researched and used extensively over the past ten years. It is used to collect student attitudes towards a course and to enable faculty members and/or evaluators to collect evaluative information about teaching. The instrument is composed of 50 items, divided into six subscales. The relationship between these subscores and the variables sex, term, curriculum, and final grade was investigated by Spencer and Dick (1965). The instrument was administered to 300 students in each of two courses and correlations between student information and subscores were computed. Results indicated that student responses had little or no relationship to the student's sex, term, or curriculum. Scores on the questionnaire and course grade did correlate significantly, but the correlation seldom exceeded .30. Spencer and Aleamoni (1969) used the split-half methods in reporting the reliability of the CEQ as follows: 1) split-half using the 22 negative versus the 22 positive items and 2) split-half using half the negative and half the positive items in each group or 25 versus 25 items. When corrected for length by the Spearman-Brown formula, the two split-half methods yielded reliabilities of .92 and .93, respectively.

Krull and Crooch (1973) developed a Rating Scale for Teaching Effectiveness that contained a total of eighteen items. Items one through eleven used a modified semantic differential format with eleven gradations. Items twelve through fourteen ranked instructors and students in relation to their peers. The last four items were open-ended.

A Rating Scale for Instructors (RSI) was developed by Doyle (1972). Students were to rate the effectiveness of the instructor on a scale from one to five, "very much like the instructor" to "very much unlike the instructor". The 107 items on the RSI were divided into four General Scales and Sixteen Specific Scales based upon the following factors related to instructor effectiveness: 1) instructor abilities, 2) instructor attitudes, 3) encouragement to intellectual activity, and 4) general motivation. The content validity of the general and specific scales was evidenced by the large pool of items from which the scales were developed and by the procedures followed in sampling items, such as the estimates of item importance by qualified judges and the power of each item to differentiate among levels of instructor proficiency. Internal consistencies for the four General Scales were uniformly high, the lowest value for Scale III: Encouragement to Intellectual Activity being .90, using the Hoyt Reliability statistical procedure. The same procedure was used to determine the internal consistency of the sixteen Specific Scales, resulting in similar findings.

Frantz (1974) developed an evaluation procedure to be used by producers of learning packages to assess their products. Upon completion of the instructional treatment by students, a post-check was administered. If 80 per cent or more of the group achieved the pre-determined criteria, it was

assumed that the learning package was satisfactory. If less than an 80 per cent achievement was evident, package components were examined to determine causes of malfunction.

In the era of accountability, administrators are concerned that funds expended are justified by benefits received. Meyer, Crawford, and Klaurnes (1975) described a procedure for a cost-benefit analysis comparing program costs to quantitative program outcomes and benefits. Seven steps to the cost-benefit analysis were identified as:

1. Review program goals which should reflect the desired benefits and should be stated in measurable outcomes.

2. In cooperation with the school administration and the advisory committee, determine what data and records are to be maintained for the cost-benefit analysis.

3. Develop a form for computing program costs including such factors as salaries, depreciation of equipment, instructional materials and supplies, and outside funding.

4. Collect the data and synthesize the benefits in accordance with what was specified in the goals and objectives.

5. Compute the program costs in terms of: total annual program costs; net program costs; net cost per student enrolled; and net cost per student placed.

6. Prepare a written report or program profile indicating the benefits derived from the amount expended per student.

7. Comparisons may be made with cost-benefit analyses of similar programs or with the desired cost levels which were specified in program objectives.

Johnson (1965) developed an instrument to be completed by employers for assessing work-related traits of employees. Each dimension of the instrument contained four descriptive phrases from which the employer checked the one phrase most characteristic of the employee.

An instrument has been developed at the University of Minnesota to assess worker performance. The main purposes of the Minnesota Satisfactoriness Scales (MSS) were to measure job performance and progress of the employee. This instrument determined how satisfactory the worker's performance was from the employer's point of view. The MSS is usually completed by the employee's supervisor or employer who evaluates the employee on 28 items concerning on the job behavior. The MSS scores on five scales: 1) performance; 2) conformance; 3) dependability; 4) personal adjustment; and 5) general satisfactoriness.

Summary

It was determined that individualization of instruction is a process which exists in varying degrees. It was defined for purposes of this study by the following list of characteristics: 1) an instructional program designed for the individual student with the student participating in the important decisions relating to his instruction; 2) some degree of self-pacing and freedom to work wherever and whenever convenient; 3) a variety of learning activities, materials, and media; and 4) a well-developed system of testing and evaluation based on individualized behavioral objectives.

Before a model and evaluative measures for use in assessment of an educational approach could be developed, the role of evaluation had to be

clarified. The primary role of evaluation as defined in this study was to provide information for use by decision makers in judging decision alternatives.

A search of the current literature provided information related to general educational assessment models. Although no one model was suitable for use in assessing individualized instruction, pertinent information from the review was used in the development of the model for this study.

A number of instruments for describing and assessing individualized instruction were reviewed. Although it was determined that no instrument examined would be appropriate in its original form for determining practices and attitudes related to individualized instruction, information from instruments described in this section was incorporated into an individualized instruction inventory. A review of the literature also provided the basis for the development and/or selection of appropriate evaluative measures to accompany the model.

PROCEDURES

The major purpose of this study was to develop a model, evaluative measures, and guidelines which could be used by educational decision makers to assess the effectiveness of individualized instruction approaches in occupational education at the community college/technical institute level. The study was conducted in two phases. Phase I consisted of a descriptive analysis of individualized instruction in occupational education programs currently offered by North Carolina community colleges and technical institutes. Phase II involved the development of the assessment model, evaluative measures, and guidelines for implementation of the model.

Phase I

The objectives dealt with in Phase I were to identify aspects of the occupational education programs being individualized and the degree to which individualization had been implemented. Procedures followed to meet these objectives are described in this section.

Population and Sample

To identify occupational education instructors a letter was mailed to the president of each of the 57 community colleges and technical institutes in North Carolina requesting the names, addresses, and principal subjects taught by each occupational education instructor employed in that institution (Appendix A). A master list of 1771 instructors from the 57 institutions was compiled.

The more than 150 different occupational courses listed in the responses were classified into the following eleven broad occupational areas:

agriculture, automotive, business and office, data processing, distributive and marketing, electronic, health, home economics, law and public safety, technical and trade and industrial. Instructors were thus classified according to the occupational area in which they taught.

A letter, instruction sheet, and reply card were then sent to each of the occupational instructors identified (Appendix B). A definition of individualized instruction and characteristics of a highly individualized instructional approach were included. Each instructor was requested to list the courses to be taught during the winter quarter, and to indicate on a scale from one to five, the degree to which each course would be individualized according to the given definition. Follow-up letters were mailed to the individual instructors and appropriate administrative personnel were contacted at each institution who were asked to encourage the instructors to return the cards. In spite of these efforts, the total number of responses obtained was 893 which represented a 50 per cent return.

Of the 893 respondents, 606 instructors indicated that they moderately (3) to highly (5) individualized instruction in one or more courses. The remaining 187 respondents who seldom individualized instruction were not included in the population for the remainder of the study.

The number of instructors who moderately to highly individualized instruction in each occupational area was as follows: agriculture, 15; automotive, 29; business and office, 140; data processing, 24; distribution, 11; electronics, 47; health, 122; home economics, 26; law and public safety, 15; technical, 29; and trade and industrial, 148. Because of the large number of instructors in three occupational areas, business and office,

health, and trade and industrial, a 40 per cent sample was randomly selected from each of these areas to participate in the study. All of the instructors in the other occupational areas were included in the sample because of the small numbers in these areas. A total of 354 instructors, representing 52 institutions, were selected to participate in the study. Most of the instructors included in the sample had indicated that they individualized more than one of the classes they taught. One class was randomly selected for each of these instructors to use as a basis for their responses to instrumentation used in the study.

Instrumentation

Based on the review of literature, the Individualized Instruction Inventory was developed to determine the degree to which specific aspects of the teaching-learning process were individualized and the attitudes of instructors toward individualized instruction (Appendix C). The instrument was divided into three parts. Part I consisted of 24 items relating to demographic data and information about the specific class which had been randomly selected for inclusion in the study. Part II contained 43 items related to specific characteristics of individualized instruction. The respondent was to rate each item on a scale from one (seldom applies) to five (applies most of the time). Part III was a 25 item attitude inventory. The items referred to student behavior in individualized classes as contrasted to that in traditional classes. The statements were rated on a scale from one (strongly disagree) to five (strongly agree).

The instrument was reviewed by the Educational Research Consultants of the Occupational Research Unit of the North Carolina State Department of

Public Education. On the basis of their comments, revisions and clarifications were made.

The inventory was pilot tested by instructors in occupational education at Guilford Technical Institute. Suggestions and recommendations from the instructors were also incorporated.

Data Collection

Directors of Occupational Education in community colleges and technical institutes were asked to distribute the inventories to instructors in the sample. Packets of materials were distributed to 37 Directors of Occupational Education who were attending a joint meeting with the Deans of Instruction from the community colleges and technical institutes. Fifteen packets were mailed to directors who did not attend the meeting. A cover letter addressed to the director was included in each packet (Appendix D). It explained the purpose of the project and asked for assistance in distributing survey materials to the specified members of the faculty.

One month later follow-up telephone calls were made to either the Director of Occupational Education or to the Dean of Instruction in 22 institutions. Each individual was asked to encourage the instructional personnel selected at their institution to return the inventory. Of the 354 instruments distributed, 274 were returned. This represented 77 per cent of the sample.

Data Analysis

Responses to items in Part I of the Individualized Instruction Inventory concerning demographic data and information about the specified class were summarized. Frequencies and percentages of responses to items in Part II,

practices related to individualizing instruction, and Part III, attitudes toward individualized instruction, were computed.

A factor analysis was made of the items in Parts II and III of the Individualized Instruction Inventory. A discriminant analysis was used to determine which items were most useful in differentiating between those respondents who moderately and highly individualized instruction. The same statistical treatment was used to determine which of the demographic variables were most useful in discriminating between those respondents having high and low practice scores (Part II) and between those with positive versus negative attitudes toward individualized instruction (Part III). In addition, two discriminant analyses were used to examine the relationships between the scores on Part II (practices) and Part III (attitudes).

Phase II

The objectives dealt with in Phase II were to develop and disseminate a model, evaluative measures, and guidelines for assessing the effectiveness of individualized instruction approaches. The procedures followed to accomplish the stated objectives are discussed in the following section.

Model, Evaluation Measures, and Guidelines

Models used in assessing educational practices which were identified in the literature were reviewed. Based on this review, a model was developed to assess individualized instruction approaches in occupational education at the community college and technical institute level.

The assessment model which was developed included four phases: 1) delineate information, 2) plan for data collection, 3) obtain information, and

4) provide information for decision making. Tasks to be completed for each phase of the model were identified and clarified.

Types of information needed for assessing individualized instruction approaches in occupational education programs and sources from which the information could be obtained were identified in the model. Information to be collected included student achievement, course evaluation, instructor evaluation, assessment of instructional materials, attitude toward individualized instruction, use of individualized instructional approaches, employee job performance, employment status of employees, employee traits, job satisfactoriness, and costs. Sources from which this information could be obtained would be students in occupational education courses, instructors, community college/technical institute administrators, and employers of students who had received training through the occupational programs.

Appropriate instrumentation was selected and/or developed for use in obtaining the different types of information identified in the model. These instruments are found in Appendix E.

Following the development of the model, guidelines for its implementation were written. The guidelines described tasks to be completed in each phase of the model. Selected examples were provided wherever possible for further clarification.

Task Force

A Task Force, composed of persons from the Occupational Research Unit and the Department of Community Colleges in the State Department of Public Education, instructors in occupational education in community colleges and technical institutes, and community college/technical institute administrators

was selected to verify the proposed model and to validate instruments previously selected or developed. The Task Force met at the University of North Carolina at Greensboro on September 12, 1975. The schedule for the Task Force meeting and a list of Task Force members are in Appendix F.

Objectives of the Task Force meeting were as follows:

1. To review data collected in Phase I of the project.
2. To determine adequacy of the Individualized Instruction Inventory for use in assessing implementation of individualized instruction approaches.
3. To critique a model proposed for use in determining the effectiveness of individualized instructional procedures.
4. To examine types of evaluative measures which could be used in the assessment procedure.
5. To determine strategies for dissemination of research findings.

Prior to the meeting, a brief summary of the research project and the proposed agenda were mailed to the Task Force members. At the meeting each Task Force member was provided with a packet of materials containing the proposed model and suggested instrumentation.

Following a presentation of the model, Task Force members worked in groups to critique the proposed model. Reactions and recommendations of the members to the model were recorded during a discussion period.

Task Force members worked in groups to examine the evaluative measures also. A form was given to each group for use in indicating whether an instrument should be included, deleted, or revised. The form included the source of information, instrumentation to use in obtaining specific types of information, suggested decision situations, and a column where the group decision was recorded.

Items in the Individualized Instruction Inventory which had previously been grouped according to factors through a factor analysis were validated by Task Force members. Each member was provided a list of the items grouped by factors and a check sheet for use in indicating whether the item should be retained, revised, or deleted. Recommendations made by the Task Force members concerning the model and instrumentation were incorporated during the process of revision.

Field Test of the Model, Evaluative Measures and Guidelines

The completed model, evaluative measures, and guidelines for implementation were field tested by selected instructors in occupational education in community colleges and technical institutes in North Carolina. Each instructor who agreed to assist in the field test selected some of the evaluative measures developed for use with the model and completed that part of the assessment procedure. Recommendations for further revision and clarification were made. Necessary changes in the model, evaluative measures, and guidelines were incorporated.

Dissemination of the Model, Evaluative Measures, and Guidelines

A summary of the research project including the model, evaluative measures, and guidelines was presented at a statewide meeting sponsored by the Occupational Research Unit in the North Carolina State Department of Public Education held in Greensboro in April, 1976. The final written report was submitted to the Occupational Research Unit of the State Department of Public Education for further dissemination.

RESULTS AND DISCUSSION

The major purpose of this study was to develop a model, evaluative measures and guidelines which could be used by educational decision makers to assess the effectiveness of individualized instruction approaches in occupational education at the community college/technical institute level. The study was conducted in two phases: 1) a descriptive analysis of individualized instruction in occupational education programs in North Carolina community colleges and technical institutes and 2) the development of a model, evaluative measures, and guidelines for use in assessing individualized instruction approaches.

The first section of this chapter contains a summary of the information collected from the respondents on the Individualized Instruction Inventory. Data are reported according to the format of the instrument: Part I, demographic data and information related to specific aspects of individualized instruction; Part II, practices used by instructors in individualizing instruction; and Part III, attitudes toward individualized instruction. Results of factor analyses of the practices and attitudes items are then reported as well as a summary of five discriminant analyses. The last section includes information on the testing of the model, evaluative measures, and guidelines as well as a copy of the model and guidelines.

Phase I

The Individualized Instruction Inventory (Appendix C) was distributed to a sample of 354 instructors in occupational education in North Carolina community colleges/technical institutes. This sample was drawn from among

those instructors who had previously identified their classes as being moderately to highly individualized. Slightly more than one-half of those who responded to the Inventory had classified themselves as individualizing instruction to a moderate degree; whereas, only 15.3 per cent rated their degree of individualization as high (Table 1).

Table 1

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO DEGREE OF INDIVIDUALIZATION

Degree of Individualization	Number	Percentage
3 - Moderate	145	52.9
4	87	31.8
5 - High	42	15.3
Total	274	100.0

Numbers and percentages of the respondents returning the Inventory by occupational area are reported in Table 2. Examination of the data revealed that there were no wide variations in the percentages of responses from instructors in different occupational areas. Thus, responses from a particular area are not likely to unduly influence interpretation of the overall results. The occupational area with the highest percentage of responses was health and that with the lowest percentage was technical operations.

Table 2

POPULATION, SAMPLE, NUMBER AND PERCENTAGE OF OCCUPATIONAL INSTRUCTORS BY OCCUPATIONAL AREA

Occupational Area	Number in Population	Number in Sample	Number Responding	Percentage Responding
Agriculture	15[a]	15	12	80.0
Automotive	29	29	23	79.3
Business	140	54	42	77.8
Data Processing	24	24	18	75.0
Distribution	11	11	8	73.7
Electronics	47	47	36	76.6
Health	122	48	42	87.5
Home Economics	26	26	20	76.9
Law and Public Safety	15	15	11	73.3
Technical Operations	29	29	19	65.5
Trade and Industry	148	56	43	76.8
Total	606	354	274	77.3

[a]Instructors with one or more classes rated degree 3 - 5 on initial contact.

Demographic Data

The respondents were representative of different age categories with the highest percentage (21.5 per cent) falling in the "26 - 30 years of age" category (Table 3). Approximately one-half of them were less than 35 years of age and only 16 per cent were over 50 years of age. Sixty-five per cent of the respondents were male. Approximately three-fourths of the respondents had taught ten years or less, with over 44 per cent teaching five years or less (Table 4).

Table 3

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO AGE

Age	Number	Percentage
25 Years or Less	22	8.0
26 - 30	59	21.5
31 - 35	41	15.0
36 - 40	36	13.1
41 - 45	32	11.7
46 - 50	23	8.4
Over 50	44	16.1
Missing Observations	17	6.2
Total	274	100.0

Table 4

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO NUMBER OF YEARS OF TEACHING EXPERIENCE AND BUSINESS EXPERIENCE

Years of Experience	Teaching		Business	
	Number	Percentage	Number	Percentage
5 or Less	123	44.9	117	42.7
6 - 10	76	27.7	50	18.2
11 - 15	42	15.3	35	12.8
16 - 20	15	5.5	21	7.7
21 - 25	4	1.5	14	5.1
Over 25	2	0.7	23	8.4
Missing Observations	12	4.4	14	5.1
Total	274	100.0	274	100.0

The respondents were asked to indicate the number of years of business or industrial experience each had received in the occupational area in which they were teaching (Table 4). Forty-three per cent of the respondents had five years or less experience; whereas, 34 per cent had more than ten years of experience.

When describing their educational background, one-fourth of the respondents had received some credits beyond the bachelors' degree and one-fifth of the respondents held a master's degree (Table 5). Fifteen participants in the study (5.5 per cent) had only a high school diploma while less than three per cent held doctorates.

Table 5

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO EDUCATIONAL BACKGROUND

Educational Background	Number	Percentage
High School Diploma	15	5.5
1 - 2 Years Post Secondary Education	32	11.7
3 - 4 Years Post Secondary Education	50	18.2
Credit beyond Bachelor's Degree	67	24.5
Master's Degree	56	20.4
Credit beyond Master's Degree	34	12.4
Doctoral Degree	8	2.9
Missing Observations	12	4.4
Total	274	100.0

Training in the use of individualized instruction was received through in-service training programs or workshops by 109 respondents (39.8 per cent), through college or university courses by 52 respondents (19.0 per cent), and through extension courses by 12 instructors (4.4 per cent). One-third of the respondents had received no formal training in the use of individualized instruction.

Almost one-fourth of the instructors had used an individualized approach to instruction for one year or less (Table 6). Another one-fourth of the respondents had individualized instruction five years or more.

Table 6

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO NUMBER OF YEARS USING INDIVIDUALIZED APPROACH TO INSTRUCTION

Number of Years Using Individualized Approach	Number	Percentage
0 to 1	68	24.8
2	60	21.9
3	42	15.3
4	29	10.6
5	26	9.5
6 or More	46	16.8
Missing Observations	3	1.1
Total	274	100.0

Data Related to Specific Aspects of Individualized Instruction

Over 70 per cent of the instructors in the sample individualized instruction for all students in the class. Forty-four respondents (16.1 per cent) individualized instruction for particular groups of students while this approach was used for only selected students by 29 respondents (10.6

per cent). More instructors (44.9 per cent) indicated that they individualized particular units within the course than indicated that they individualized the entire course (35 per cent), or selected lessons (10.8 per cent).

Most of the respondents (92.3 per cent) indicated that an instructional resource center with a variety of media was available to students. Over three-fourths of the instructors reported that the center was available to students more than thirty-five hours per week; whereas, only nine respondents (3.3 per cent) indicated that the resource center was available for ten hours or less (Table 7).

Table 7

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO AVAILABILITY OF RESOURCE CENTER

Number of Hours Per Week Resource Center was Available	Number	Percentage
Not Available	13	4.7
65 or More	68	24.8
35 - 64	147	53.6
11 - 34	21	7.7
10 or Less	9	3.3
Missing Observations	16	5.8
Total	274	100.0

The traditional ABC grading system was used for reporting student progress by 219 respondents (79.9 per cent). Thirteen instructors (4.7 per cent) used the pass-fail basis for grading students and thirty-five instructors (12.8 per cent) graded on the basis of number of competencies achieved.

Over 80 per cent of the respondents indicated that there was no cooperative training program in operation in that particular institution. In those instances where cooperative training programs did exist, over 40 per cent indicated that admissions requirements were based on criteria other than those listed on the inventory (Table 8). Some of the criteria used to determine admissions to the program were student attitudes, grades, financial need, personal interview, student status, and teacher recommendation. Eighteen respondents (27.3 per cent) reported that admission requirements were based on a specific prerequisite course; whereas only nine instructors (13.6 per cent) used the number of credit hours completed as a criterion for admission to a cooperative program.

When instructors were asked to indicate whether or not materials used in class reflected varying levels of difficulty, 71.2 per cent checked the affirmative. In response to another question, 98 instructors (35.8 per cent) reported that materials reflecting varying levels of difficulty were available for the same learning activity some of the time and another third indicated that different materials were available most of the time (Table 9). However, 33 respondents (12.0 per cent) stated that such materials were never available.

Respondents were asked to identify what variable was used to determine the level of materials used by each student. The variables, ranked from most

Table 8

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO ADMISSION REQUIREMENTS FOR COOPERATIVE PROGRAM

Admission Requirements	Number	Percentage
Proficiency Test Scores	12	18.2
Specific Prerequisite Courses	18	27.3
Number of Credit Hours Completed	9	13.6
Other	27	40.9
Missing Observations		
Total	66	100.0

Table 9

NUMBER AND PERCENTAGE OF RESPONSES ACCORDING TO AVAILABILITY OF VARYING LEVELS OF MATERIALS FOR THE SAME LEARNING ACTIVITY

Availability of Varying Levels of Materials for the Same Learning Activity	Number	Percentage
Most of the Time	90	32.8
Some of the Time	98	35.8
Seldom	42	15.3
Never	33	12.0
Missing Observations	11	4.0
Total	274	100.0

to least often used, were: student interest, career goals, reading ability, pre-test scores, and math ability. Some of the methods used by the forty-three respondents who checked "other methods" to determine level of materials were: student needs, student abilities, subject, course objectives, availability of materials, and student performance.

Instructors were asked to indicate what was needed in order to individualize instruction more effectively. The variables, ranked from the highest percentage of affirmative responses to the lowest, were: more time, more training, smaller classes, more equipment, more paraprofessional help, more cooperation from school administration, and "other" variables. Some of the "other" variables listed by the respondents were more and improved instructional materials, more money, space, or experience, different full time equivalent formulation by the Department of Community Colleges, and improved cooperation from the State Department of Public Education.

Inventory Part II - Practices Related to Individualized Instruction

Instructors were asked to rate the 43 statements in Part II according to the degree to which each statement applied to the selected classes. Items were rated on a scale of one to five, from "Seldom" to "Applies Most of the Time".

More than 75 per cent of the instructors reported that students were encouraged to check their own work and determine reasons for their errors, were evaluated on their performance in relation to stated objectives and established standards of performance, and that the instructor worked with students and/or groups on a one-to-one basis (Table 10). Approximately 50 per cent of the respondents indicated that students worked at their own

Table 10

ITEMS IDENTIFIED BY OVER SEVENTY-FIVE PER CENT OF THE RESPONDENTS AS INDIVIDUALIZED MOST OF THE TIME

Item	Degree of Individualization				
	Seldom		Half the Time		Most of the Time
	1	2	3	4	5
3. Diagnostic information is obtained by closely observing and analyzing students' work.	3.4	6.0	12.7	32.1	45.9
19. Students have access to classroom and/or laboratory facilities whenever the school is open.	6.4	3.7	12.0	17.6	60.3
20. The instructor works with individual students and/or small groups on a one-to-one basis.	1.9	3.8	18.2	23.1	53.0
31. Students are encouraged to find and correct their own mistakes.	3.7	3.7	15.6	24.4	53.7
32. Students are encouraged to determine the reasons for their errors.	2.2	2.2	8.9	25.6	61.1
33. Students have opportunities to check their own work.	4.4	3.7	13.7	24.1	54.1
34. Students are evaluated on their performance in relation to the stated objectives.	0.4	5.2	8.2	25.3	61.0
43. Students are evaluated according to established standards of performance.	3.7	4.8	12.6	21.9	57.0

rate of speed, used teacher-made materials, worked on different assignments, and that work was evaluated when students believed that their work was ready for evaluation (Tables 11 and 12).

Less than 20 per cent of the instructors indicated that students were allowed to select the learning activities they would use in order to accomplish the objectives or to select what they wanted to learn within the context of the course. Information from school records was used for placing students in the sequence of learning activities, that paraprofessional personnel were available, and that students may enter the course of instruction at any time during the semester were also practices followed by less than 20 per cent of the instructors (Table 13).

Inventory Part III - Attitudes Toward Individualized Instruction

The third part of the instrument was constructed to obtain data on the attitudes of occupational education instructional personnel toward individualized instruction. Instructors were asked to rate each of the 25 attitude statements on a scale from one to five, indicating "Strongly Disagree" to "Strongly Agree". For purposes of reporting, responses in categories one and two were collapsed and labeled "Disagree" and those in categories four and five collapsed and labeled "Agree" (Table 14).

Statements with which two-thirds or more of the instructors "agreed or strongly agreed" reflected that they believed students in individualized classes have more opportunities to experience success, are more likely to profit from mistakes, engage in activities more likely to be meaningful to them, are more involved in decisions made for and about the class, and are more likely to develop a positive attitude toward learning than students in

Table 11

ITEMS IDENTIFIED BY FROM FIFTY-ONE THROUGH SEVENTY-FIVE PER CENT OF THE RESPONDENTS AS INDIVIDUALIZED MOST OF THE TIME

Item	Degree of Individualization				
	Seldom 1	2	Half the Time 3	4	Most of the Time 5
4. Before suggesting any change of activity, diagnostic attention is given to the particular student and his level of performance.	2.2	7.5	19.1	32.2	39.0
5. Work is evaluated when students feel their work is ready for evaluation.	16.9	12.4	16.5	20.2	34.1
6. A collection of student work is kept for use in evaluating progress over a period of time.	15.7	10.8	18.3	22.8	32.8
8. Students are encouraged to give advice to one another concerning daily assignments.	6.0	6.8	14.3	24.1	49.2
11. Desks, chairs, and equipment can be moved about easily to provide a flexible learning environment.	17.2	7.5	9.7	15.3	50.4
12. Student work is evaluated at set intervals.	10.4	6.3	12.7	23.1	47.4
13. Objectives are written to include the desired student behavior, the conditions under which the behavior is shown, and the accepted standard of performance.	5.9	8.6	17.1	26.8	41.6
18. At their convenience, students are able to use audiovisual equipment such as records and record players; tape recordings and tape recorders; film strips, slides, 35 mm films, and projection equipment.	20.7	10.2	10.9	17.3	41.0

Table 11 (Continued)

Item	Degree of Individualization				
	Seldom		Half the Time		Most of the Time
	1	2	3	4	5
23. Students are free to work in different areas of the classroom.	11.7	6.4	15.9	17.4	48.5
24. Within a class period, students are working on different assignments.	21.6	10.4	14.9	14.6	38.4
27. The learning activity for each student to use in accomplishing the objective is prescribed by the instructor.	5.3	9.0	22.9	32.0	30.8
38. Students are allowed to achieve different levels of proficiency when appropriate.	11.9	8.2	21.2	29.7	29.0
42. Students may work at their own rate of speed.	13.4	10.4	22.3	19.3	34.6

Table 12

ITEMS IDENTIFIED BY FROM TWENTY-SIX THROUGH FIFTY PER CENT OF THE RESPONDENTS AS INDIVIDUALIZED MOST OF THE TIME

Item		Degree of Individualization				
		Seldom		Half the Time		Most of the Time
		1	2	3	4	5
1.	Students with similar needs are grouped for lessons.	25.6	11.7	23.7	15.8	23.3
2.	The instructional program includes learning experiences related to the course which involve student interaction with the neighborhood and/or business community.	23.4	14.7	20.4	16.6	24.9
7.	Student self-evaluation is an important consideration in determining student grades.	29.0	20.4	24.5	12.3	13.8
9.	Different objectives are established for each student on the basis of individual interests, abilities, and/or goals.	32.0	14.9	26.8	14.1	12.3
16.	Students select instructional materials and media that appeal to them from the available supply of learning resources.	27.7	22.5	20.2	19.1	10.5
17.	Teacher-made materials such as work sheets, games, transparencies, and charts are used by students	13.6	9.8	25.8	27.7	23.1
25.	Intra-class groupings are formed to serve a variety of instructional purposes.	26.3	18.7	24.8	14.9	15.3
26.	Intra-class groupings are changed frequently.	35.2	15.9	22.0	16.3	10.6

Table 12 (Continued)

Item	Degree of Individualization				
	Seldom		Half the Time		Most of the Time
	1	2	3	4	5
28. Each student progresses through the course of instruction independently of other class members.	18.4	16.5	19.9	17.2	28.1
29. Each student, alone or with his instructor, decides upon the competency level he should reach in order to accomplish his objectives.	27.4	18.3	18.3	19.0	17.1

Table 13

ITEMS IDENTIFIED BY FROM ONE THROUGH TWENTY-FIVE PER CENT OF THE RESPONDENTS AS INDIVIDUALIZED MOST OF THE TIME

Item	Degree of Individualization				
	Seldom		Half the Time		Most of the Time
	1	2	3	4	5
10. Different objectives are established for sub-groups of students within the class on the basis of similar interests, abilities, and/or goals among sub-group members.	37.6	16.2	24.8	16.2	5.3
14. Students select their own concepts for study (what they want to learn) within the context of the course.	49.8	20.4	17.5	6.7	5.6
15. Each student decides upon the learning activity he will use in order to accomplish his objective.	38.0	19.5	25.2	10.9	6.4
21. Paraprofessional personnel work with individual students on a one-to-one basis.	56.3	11.1	13.0	6.1	13.4
22. Paraprofessional personnel work with small groups of students.	59.6	11.9	12.7	6.5	9.2
30. Students are responsible for setting their own time schedules for completing assignments.	39.1	18.4	17.7	11.3	13.5
35. Students are permitted to enter the course of instruction at any time during the quarter.	79.9	7.1	4.1	3.3	5.6
36. Students are permitted to complete the course of instruction at any time during the quarter.	63.9	5.8	7.8	5.2	17.5

Table 13 (Continued)

Item	Degree of Individualization: Seldom 1	2	Half the Time 3	4	Most of the Time 5
37. Students are evaluated according to percentage of improvement as indicated by their performance on a pre-test and a post-test.	53.2	12.8	14.7	7.5	11.7
39. Information obtained from pre-tests is used for placing students in the proper sequence of learning activities.	50.0	12.8	16.9	8.3	12.0
40. Information obtained from previous school records is used for placing students in the proper sequence of learning activities.	52.3	15.0	15.4	9.4	7.9
41. Information obtained from interviews with students is used for placing students in the proper sequence of learning activities.	34.7	16.8	22.8	14.6	11.2

Table 14

PERCENTAGE OF RESPONSES TO ATTITUDE STATEMENTS ACCORDING TO DEGREE OF AGREEMENT

Item	Disagree 1 & 2	Unsure 3	Agree 4 & 5
A. As compared to classes using traditional instructional approaches, students in individualized classes:			
1. learn more	8.9	27.4	63.7
2. are more likely to be bored	75.8	13.1	15.1
3. engage in activities more likely to be meaningful to them	5.4	15.4	79.1
4. are more likely to profit from mistakes	6.9	12.6	80.4
5. have more opportunities to experience success	5.8	10.3	83.9
6. are more highly motivated to learn	16.1	28.1	55.8
7. work under more pressure	56.9	26.0	17.1
8. are more likely to waste time	40.3	26.4	33.4
9. lack incentive to learn	63.2	19.4	17.4
10. are better prepared to meet the demands of business and industry for workers with diverse talents and skills	13.9	31.3	54.8
11. are more likely to develop a positive attitude toward learning	8.9	23.5	67.7
12. are more likely to continue learning after completing the course	6.3	29.3	64.4
13. are more involved in decisions made for and about the class	9.7	18.5	71.8

Table 14 (Continued)

Item	Disagree 1 & 2	Unsure 3	Agree 4 & 5
B. As compared to traditional instruction, individualized instruction:			
1. is less likely to provide the common body of knowledge all students must possess	46.1	24.6	29.3
2. allows students more choice in what they learn	10.8	17.3	71.9
3. emphasizes the process of learning at the expense of subject matter content	37.9	31.4	30.6
4. promotes critical thinking	10.8	24.7	64.5
5. results in less control of the class	56.8	15.8	27.4
6. tends to lower educational standards for most students	58.7	21.6	19.7
7. is not an appropriate technique to use for a wide variety of subjects	29.2	31.5	39.2
8. is more democratic than traditional instruction	12.8	27.5	59.6
9. places too much responsibility on students	64.1	16.0	19.9
10. requires more instructor time	10.6	10.5	78.9
11. should be encouraged for most occupational classes at the technical institute and community college level	15.0	29.6	55.4
12. increases instructional costs	13.5	32.7	53.9

traditional classes. Furthermore, they believed individualized instruction allows students more choice in what they learn and that it requires more instructor time.

Statements with which less than 20 per cent of the respondents "agreed or strongly agreed" were that students in individualized classes lack incentive to learn, work under more pressure, and are more likely to be bored. In addition, less than 20 per cent of the respondents agreed with the statements that individualized instruction places too much responsibility on students and tends to lower educational standards for most students.

Discriminant Analysis

In order to answer the question about which practices (Part II, Individualized Instruction Inventory) discriminated best between those respondents who rated themselves as individualizing instruction to a moderate degree and those who rated themselves as highly individualizing instruction, a discriminant analysis was used. The single item which discriminated best between the two groups was number 21 "Paraprofessional personnel work with individual students on a one-to-one basis", i.e., those who rated themselves as highly individualizing instruction were likely to have a higher score on this item than those who viewed themselves as moderately individualizing instruction. Additional items which were useful in discriminating between the two groups, in order of effectiveness, were:

16. Students select instructional materials and media that appeal to them from the available supply of learning resources.

*14. Students select their own concepts for study (what they want to learn) within the context of the course.

43. Students are evaluated according to established standards of performance.

* 4. Before suggesting any change of activity, diagnostic attention is given to the particular student and his level of performance.

*19. Students have access to classroom and/or laboratory facilities whenever the school is open.

*34. Students are evaluated on their performance in relation to the stated objectives.

Items marked with an asterisk were those which instructors who highly individualized instruction were likely to implement more often than those who only moderately individualized instruction; the opposite was true for items 16 and 43.

Two discriminant analyses were used to determine the relationship between the scores on Part II (practices) and Part III (attitudes) on the Individualized Instruction Inventory. Items representing practices which were most useful in differentiating between those with high and low attitude scores are shown in Table 15. Those with an asterisk were the items on which instructors with positive attitudes were more likely to score higher than those with more negative attitudes, while the opposite was true for those not marked. For example, those with positive attitudes were likely to use intra-class groupings (25) and allow students to decide upon the learning activities they will use to accomplish their objectives (15) more often than those with negative attitudes.

Conversely, attitude statements which were most effective in discriminating among respondents with low, average, and high practice scores were as follows:

*A10. Students are better prepared to meet the demands of business and industry for workers with diverse talents and skills.

B 9. Individualized instruction places too much responsibility on students.

Table 15

PRACTICES MOST USEFUL IN DIFFERENTIATING BETWEEN RESPONDENTS WITH HIGH AND LOW ATTITUDE SCORES

Number	Item
*25.	Intra-class groupings are formed to serve a variety of instructional purposes.
24.	Within a class period, students are working on different assignments.
*15.	Each student decides upon the learning activity he will use in order to accomplish his objective.
8.	Students are encouraged to give advice to one another concerning daily assignments.
*42.	Students may work at their own rate of speed.
4.	Before suggesting any change of activity, diagnostic attention is given to the particular student and his level of performance.
*18.	At their convenience, students are able to use audio-visual equipment such as records and record players; tape recordings and tape recorders; film strips, slides, 35 mm films, and projection equipment.
*20.	The instructor works with individual students and/or small groups on a one-to-one basis.
* 3.	Diagnostic information is obtained by closely observing and analyzing students' work.
38.	Students are allowed to achieve different levels of proficiency when appropriate.
*17.	Teacher-made materials such as work sheets, games, transparencies, and charts are used by students.
13.	Objectives are written to include the desired student behavior, the conditions under which the behavior is shown, and the accepted standard of performance.
*27.	The learning activity for each student to use in accomplishing his objective is prescribed by the instructor.
* 5.	Work is evaluated when students feel their work is ready for evaluation.

Table 15 (Continued)

*43.	Students are evaluated according to established standards of performance.
41.	Information obtained from interviews with students is used for placing students in the proper sequence of learning activities.
26.	Intra-class groupings are changed frequently.
* 7.	Student self-evaluation is an important consideration in determining student goals.
* 1.	Students with similar needs are grouped for lessons.
*19.	Students have access to classroom and/or laboratory facilities whenever the school is open.
35.	Students are permitted to enter the course of instruction at any time during the quarter.

A 2. Students are more likely to be bored.

*A 1. Students learn more.

A12. Students are more likely to continue learning after completing the course.

B 3. Individualized instruction emphasizes the processes of learning at the expense of subject matter content.

A 9. Students lack incentive to learn.

B11. Individualized instruction should be encouraged for most occupational classes at the technical institute and community college level.

Those individuals with high practice scores were likely to have higher scores on those items marked with an asterisk and lower scores on those not marked than individuals with average or low practice scores. For example, those respondents who had high practice scores were more likely to express stronger agreement that students in individualized classes learn more (A1) and stronger disagreement that students are more likely to be bored (A2) than those with lower practice scores.

The same statistical treatment was used to determine the relationship between demographic variables and attitudes toward individualized instruction. The variables most useful in differentiating between instructors with high and low scores on the attitude scale, in order of importance, were number of years using individualized approaches, sex, type of training in individualizing instruction and years of teaching experience. The profile which emerged indicated that those with positive attitude scores were likely to be women who had used the individualized approach a number of years, had received training in the use of individualized instruction through a college or university course rather than through in-service training, and had taught for a relatively short period of time.

Demographic variables most useful in discriminating between those respondents with high, average and low practice scores were educational background, number of years using individualized instruction, type of training, and age. The profile indicated that instructors with higher practice scores were likely to have less professional training, to have used individualized instruction longer, to have received training in individualized instruction via a college or university course, and to be older. In summary, those with both high practice and positive attitude scores were those who had used the approach longer and had received training via a college or university course.

Phase II

Factor Analysis

Practices The decision was made to use portions of the Individualized Instruction Inventory as one of the evaluative measures to accompany the model developed in Phase II of the project. In preparation for this use, a factor analysis was made of the items relating to practices in Part II of the Inventory. Since several factors did emerge from the analysis, use of the factors would provide more reliable estimates of individualized practices than use of individual items. The instrument was revised to include only the items identified in the factor analysis.

Seven factors were derived from the factor analysis and varimax rotation of the 43 items in Part II of the Inventory. Items within each factor were determined by size of factor loadings, profile of the item, and rationality to fit. Size of factor loading required for items to be included was .40.

One exception to this was a loading of .38 for an item which fit on a rational basis with other items in the factor. The factors ranged in size from two to five items. Eighteen of the items were not included in any of the factors.

The factors, labeled according to the dimension they appeared to define, and the items in each are given in the following section. Factor loadings are given in the first column with decimal places omitted. In the second column is the number of the item on the Individualized Instruction Inventory.

Factor Loading	Item Number	Item
FACTOR I - Self Evaluation		
77	31.	Students are encouraged to find and correct their own mistakes.
83	32.	Students are encouraged to determine the reasons for their errors.
69	33.	Students have opportunities to check their own work.
FACTOR II - Student Involvement in Decision Making		
41	9.	Different objectives are established for each student on the basis of individual interests, abilities, and/or goals.
59	14.	Students select their own concepts for study (what they want to learn) within the context of the course.
74	15.	Each student decides upon the learning activity he will use in order to accomplish his objective.
56	16.	Students select instructional materials and media that appeal to them from the available supply of learning resources.
38	29.	Each student, alone or with his instructor, decides upon the competency level he should reach in order to accomplish his objective.

Factor Loading	Item Number	Item
FACTOR III - Flexibility of Pacing		
42	28.	Each student progresses through the course of instruction independently of other class members.
49	35.	Students are permitted to enter the course of instruction at any time during the quarter.
74	36.	Students are permitted to complete the course of instruction at any time during the quarter.
52	42.	Students may work at their own rate of speed.
FACTOR IV - Types of Evaluation		
50	3.	Diagnostic information is obtained by closely observing and analyzing student work.
50	4.	Before suggesting any change of activity, diagnostic attention is given to the particular student and his level of performance.
52	27.	The learning activity for each student to use in accomplishing his objective is prescribed by the instructor.
46	34.	Students are evaluated on their performance in relation to the stated objective.
56	43.	Students are evaluated according to established standards of performance.
FACTOR V - Intra-Class Groupings		
81	25.	Intra-class groupings are formed to serve a variety of instructional purposes.
71	26.	Intra-class groupings are changed frequently.
FACTOR VI - Information Base for Placement of Students		
44	39.	Information obtained from pre-tests is used for placing students in the proper sequence of learning activities.
73	40.	Information obtained from previous school records is used for placing students in the proper sequence of learning activities.

Factor Loading	Item Number	Item
62	41.	Information obtained from interviews with students is used for placing students in the proper sequence of learning activities.

FACTOR VII - Materials and Equipment

46	13.	Objectives are written to include the desired student behavior, the conditions under which the behavior is shown, and the accepted standard of performance.
40	17.	Teacher-made materials such as work sheets, games, transparencies, and charts are used by students.
42	18.	At their convenience, students are able to use audio-visual equipment, such as records and record players; tape recordings and tape recorders; film strips, slides, 35 mm films, and projection equipment.

Attitudes Two factors were derived from the factor analysis and varimax rotation of the 25 items in Part III of the Inventory. Items within each factor were determined by size of factor loading (.40 or above) and rationality of fit. Factors I and II, respectively, contained five and six items. Fourteen of the items were not included in either of the factors.

The factors and the items in each are listed in the following section. Factor loadings are given in the first column; decimal points are omitted. The number of the item on the Inventory is given in the second column. Items were keyed either positively or negatively so that all items in a factor were scored in the same direction. Items which would be keyed negatively for the purpose of computing a factor score are indicated by a minus sign preceding the item number.

Factor Loading	Item Number	Item
FACTOR I - Degree of Learning		
64	-B1.	Individualized instruction is less likely to provide the common body of knowledge all students need to possess.
61	-B3.	Individualized instruction emphasizes the processes of learning at the expense of subject matter content.
64	-B6.	Individualized instruction tends to lower educational standards for most students.
51	-B7.	Individualized instruction is not an appropriate technique to use for a wide variety of subjects.
54	-B9.	Individualized instruction places too much responsibility on students.
FACTOR II - Student Involvement		
44	B2.	Individualized instruction allows students more choice in what they learn.
41	-A1.	Students are more likely to be bored.
61	A3.	Students engage in activities more likely to be meaningful to them.
52	A4.	Students are more likely to profit from mistakes.
51	A5.	Students have more opportunities to experience success.
52	A6.	Students are more highly motivated to learn.

Discriminant Analysis

Of the 16 items which were useful in discriminating between those who rated themselves as highly or moderately individualizing instruction, nine were also included in the factor analysis. This gave additional support for the decision to use the results of the factor analysis in the revision of the Inventory.

Field Test of the Model, Guidelines, and Evaluative Measures

The model, guidelines for implementation, and selected evaluative measures were field tested in two technical institutes in North Carolina. The model and guidelines were reviewed by the chairmen of two occupational education departments and five instructors. Minor revisions in the guidelines were recommended and changes were made.

Selected evaluative measures were also tested. Since the Reaction to Course, Instructor, and Instructional Materials (Appendix E) had not been field tested by students, 20 occupational education instructors agreed to use the instrument with their classes. Of the 311 students who responded, over 60 per cent were women under 25 years of age and slightly over 30 per cent were men under 25 years of age. Almost 90 per cent of the respondents were full-time students and 244 (78.5 per cent) of the students indicated that they had received sufficient preparation to enroll in the course.

Students were asked to rate the nine items describing instructor attributes on a scale from one (not descriptive) to five (highly descriptive). Over 70 per cent of the respondents indicated that the instructor attributes listed on the instrument were "descriptive-highly descriptive" of their instructor (Table 16). Some responses were made, however, in each of the categories for each item, indicating that items were at least somewhat descriptive of the range of attributes held by instructors.

When students were asked to respond to the 17 items related to course assessment, the distribution of responses across the five categories was greater in this portion of the instrument than in the instructor attribute portion (Table 17). Responses in the "descriptive-highly descriptive" or

Table 16

MEAN ITEM SCORES AND PERCENTAGES OF STUDENT RESPONSES TO INSTRUCTOR ATTRIBUTES

Item	Mean	Percentages of Responses				
		Not Descriptive to Highly Descriptive				
		1	2	3	4	5
The Instructor:						
1. Knows the subject matter.	4.41	1.0	4.8	4.8	30.9	58.5
2. Is willing to work with students other than during scheduled class time.	4.13	2.9	5.1	13.2	32.2	46.0
3. Accepts constructive criticism.	3.94	4.8	5.1	17.0	35.4	36.0
4. Grades fairly.	4.17	2.3	5.1	8.4	40.5	43.1
5. Is aware of students needs, abilities, and interests.	4.13	2.6	7.4	8.7	35.7	45.0
6. Establishes a classroom situation conducive to learning.	4.20	2.6	4.5	7.1	41.2	44.4
7. Is intellectually stimulating.	4.08	2.9	6.8	10.0	39.5	40.8
8. Respects students.	4.36	2.3	2.9	3.9	37.3	53.1
9. Has a sense of humor.	4.20	2.6	4.2	10.3	35.7	47.3

Table 17

MEAN ITEM SCORES AND PERCENTAGES OF STUDENT RESPONSES TO OVERALL COURSE ASSESSMENT

Item	Mean	Percentages of Responses				
		Not Descriptive to Highly Descriptive				
		1	2	3	4	5
1. Content was neither too difficult nor too easy.	3.86	3.2	7.7	11.3	55.0	22.8
2. I was unsure of what, exactly, I was supposed to be learning.	2.43	46.6	9.3	7.1	24.4	11.3
3. Objectives for each set of learning experiences or assignments were clearly stated and discussed.	3.94	1.6	11.6	6.8	50.5	29.3
4. Learning experiences and assignments were helpful in reaching objectives.	4.02	2.6	7.4	9.0	45.7	33.8
5. At the end of the course I was still uncertain about a lot of things.	2.20	43.1	12.5	18.3	14.1	5.1
6. Tests and/or exams were fair.	4.01	2.9	5.5	13.5	38.6	34.7
7. Evaluation occurred frequently throughout the course.	3.47	10.0	10.3	19.9	37.9	19.3
8. I would recommend extensive modifications to the course before using it with other students.	2.41	39.9	13.2	19.9	17.0	9.0
9. Evaluation materials helped me to identify my strengths and weaknesses.	3.78	6.1	7.1	14.8	44.1	26.4
10. A variety of materials and learning experiences were available for student selection.	3.74	3.2	6.8	16.1	34.1	27.0

Table 17 (Continued)

Item	Mean	Percentages of Responses				
		Not Descriptive to Highly Descriptive				
		1	2	3	4	5
11. After completing the course, I was more interested in and/or favorably impressed with the general subject matter than I was before taking the course.	3.91	3.2	6.8	16.1	34.1	31.2
The Course:						
12. was designed to adequately develop skills and competencies.	4.11	1.9	5.8	8.0	46.9	36.7
13. covered the material I expected it to cover.	4.03	1.3	7.7	9.0	48.9	32.2
14. was well organized.	4.10	2.6	7.4	6.4	43.4	38.9
15. directly contributed to preparation for employment.	3.89	4.8	8.7	14.8	34.1	36.0
16. would be one I would recommend to others.	4.10	3.2	6.1	10.9	35.7	43.4
17. was worthwhile.	4.23	1.3	6.1	8.4	35.0	47.9

"somewhat-not descriptive" categories (whichever was most appropriate) ranged from 53.1 per cent to 83.6 per cent. Again, responses were made in each of the categories for each item.

Students were asked to indicate their degree of agreement with nine items related to instructional materials used in the course (Table 18). As was true for the other parts of the instrument, there were responses in each agreement level for each item. Responses in the agree or disagree categories (whichever was more relevant) ranged from 48.8 per cent to 84.2 per cent. In summary, on the basis of this field test, it would appear that this instrument could be useful in assessing instructor attributes, courses, and instructional materials.

The instructors who used the Reactions to Course, Instructor, and Instructional Materials with their classes were also asked to react to items on the instrument. Their suggestions for revision were reviewed and further clarifications in the instrument were made.

Some of the instructors volunteered to complete the Individualized Instruction Inventory (Appendix E) that had been developed for use in describing practices used in individualizing instruction approaches. Responses for each instructor were summarized by factors (Table 19). Due to the range of scores reported for each of the factors, it would appear that this instrument could be useful in discriminating among those who do and do not individualize instruction.

Two occupational education instructors volunteered to field test the Individualized Instruction Attitude Scale (Appendix E) with 37 students. Responses for each student in each class were summarized by factors

Table 18

MEAN ITEM SCORES AND PERCENTAGES OF STUDENT RESPONSES TO ASSESSMENT OF INSTRUCTIONAL MATERIALS

Item	Mean	Percentages of Responses				
		Not Descriptive 1	2	3	4	to Highly Descriptive 5
The instructional materials:						
1. Were well organized.	4.14	1.9	4.8	6.8	48.2	36.0
2. Were redundant. I was bored by the repetition of ideas.	1.95	42.1	33.4	9.6	9.3	3.2
3. Contained irrelevant information.	2.09	38.6	32.2	10.6	12.9	3.9
4. Were designed so that I could easily follow the instructions and perform the exercises.	4.10	1.9	4.8	8.0	49.5	33.8
5. Contained many unfamiliar works. I often did not understand what was going on.	2.10	36.7	37.0	5.8	15.1	3.5
6. Included pre-test and post-test questions which adequately tested my knowledge of the main points of the course.	3.27	11.6	13.8	20.6	35.0	13.8
7. Included questions which provided valuable feedback on how I was doing.	3.66	6.4	8.7	17.0	43.4	21.5
8. Were available for use when needed.	4.00	2.3	4.8	9.0	55.9	26.0
9. Contained activities that seemed like needless busy work.	2.19	38.9	29.9	8.0	14.1	7.1

Table 19

FACTOR SCORES FOR INSTRUCTORS ON THE INDIVIDUALIZED INSTRUCTION INVENTORY

	Factors						
Instructor	Self-Evaluation 15[a]	Student Involvement in Decision Making 25	Flexibility of Pacing 20	Types of Evaluation 25	Intra-Class Groupings 10	Information for Placement 15	Materials and Equipment 15
1	12	6	5	14	2	5	3
2	12	9	10	16	10	5	9
3	13	12	9	23	4	7	3
4	13	13	4	21	10	7	5
5	7	13	11	23	6	5	12

[a]Total possible scores.

(Table 20). The variation in scores would support use of the instrument to identify attitudes toward individualized instruction.

Model and Guidelines

The model, guidelines, and evaluative measures developed for Phase II of the study can be used to collect data at various stages of implementation of individualized instruction approaches. Selected tasks in the model and instruments may be used to collect data prior to the time a major decision is to be made and/or to improve procedures during implementation. The model can also be used to assess the general effectiveness of an individualized instruction approach after it has been in operation for an extended time.

The materials are presented in the following order:

a. Assessment model

b. Guidelines for implementing the model

Table 20

FACTOR SCORES FOR STUDENTS ON THE INDIVIDUALIZED INSTRUCTION ATTITUDE SCALE

Students in Class I	Factor I Degree of Learning (25)[a]	Factor II Student Involvement (30)	Students in Class II	Factor I Degree of Learning (25)	Factor II Student Involvement (30)
1	10	26	1	8	25
2	17	25	2	9	24
3	16	24	3	19	26
4	15	25	4	13	23
5	10	24	5	17	17
6	8	25	6	11	16
7	13	21	7	11	17
8	12	23	8	12	19
9	11	25	9	12	23
10	18	18	10	13	17
11	11	25	11	14	22
12	11	29	12	10	27
13	14	22	13	12	23
14	14	24	14	15	18

Table 20 (Continued)

Students in Class I	Factor I Degree of Learning (25)[a]	Factor II Student Involvement (30)	Students in Class II	Factor I Degree of Learning (25)	Factor II Student Involvement (30)
15	11	23	15	10	22
16	11	24	16	11	25
17	16	21	17	11	24
18	13	24	18	14	25
			19	14	20

[a]Possible scores

ASSESSMENT MODEL

In the model, educational assessment is defined as the process of delineating information needs, planning for data collection, obtaining information, and providing information for decision making. Figure 1 shows the four phases of the model - delineating, planning, obtaining, and providing - and specific tasks within each phase.

Figure 1

ASSESSMENT MODEL

DELINEATE INFORMATION 1.	PLAN FOR DATA COLLECTION 2.	OBTAIN INFORMATION 3.	PROVIDE INFORMATION FOR DECISION MAKING 4.
Set Boundaries 1.1	Determine Types of Information 2.1	Collect Data 3.1	Prepare Report 4.1
Specify Decisions 1.2	Identify Sources of Information 2.2	Organize and Analyze Data 3.2	Make Decisions 4.2
Identify Background Information Needs 1.3	Select Data Collection Devices 2.3		
	State Minimum Criteria Levels 2.4		
	Determine Sampling Procedure 2.5		

Once the decision to evaluate individualized instructional approaches in Occupational Education at the Technical Institute/Community College level has been made, the procedures specified in the model could be used to provide

information and feedback for decision making. A description of each phase of the model with suggestions for implementation follows. The examples included are for purposes of clarification of various aspects of the model.

GUIDELINES FOR IMPLEMENTING THE ASSESSMENT MODEL

Phase 1. Delineation of Information Needs

The specific tasks involved in Phase 1 are shown in Figure 2.

1.1 Set Boundaries. Establish boundaries or limits within which the assessment plan is to be implemented. Boundaries in a particular situation would include the educational areas to be assessed and should be limited to a manageable size and to factors of particular interest in an institution.

EXAMPLE: *Courses in Occupational Education classified as using an individualized instructional approach.*

1.2 Specify Decisions. Specify decisions to be considered including the reason for assessment, personnel, budget limitations, time schedule, and questions to be answered by the assessment procedure.

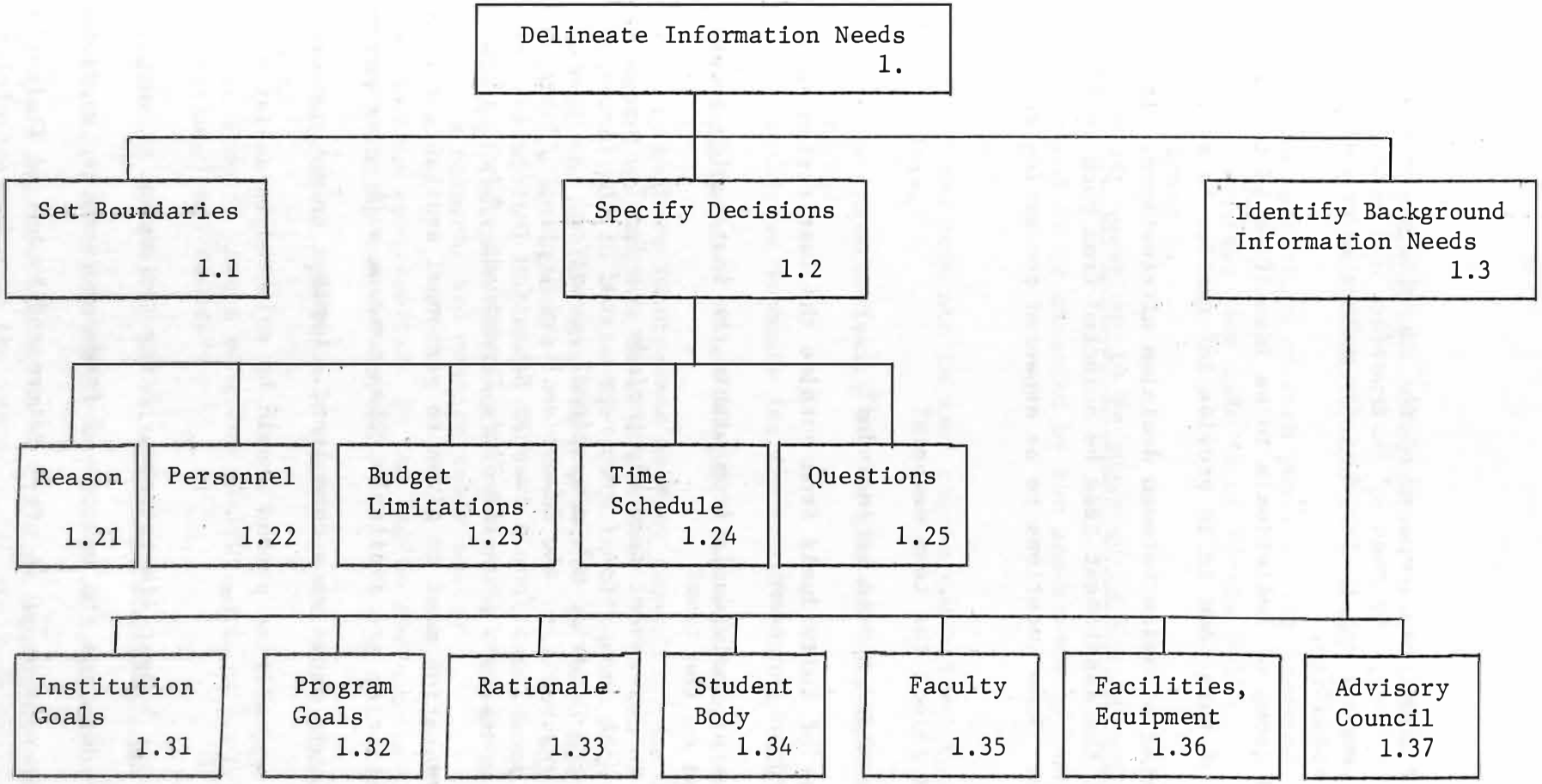
1.21. Define reason for assessment. Identify and define reasons for assessment. This may include such factors as difficulties encountered in the program, community pressures, accountability, requests for data from the State Department of Public Education, or a lack of data relevant to the effectiveness of individualized instructional approaches.

EXAMPLE: *Continuation of Federal funding requires assessment.*

1.22. Decide on personnel to conduct assessment. Identify the two groups of individuals who are to be involved in the assessment procedure - the decision makers and members of the assessment team. Throughout the guidelines the decision maker is the individual(s) responsible for making final decisions on the basis of data provided by the assessment team.

Figure 2

TASKS FOR DELINEATION OF INFORMATION NEEDS



EXAMPLE: *A committee composed of the Educational Development Officer, the Dean of Instruction, and selected faculty members may be the decision makers in a particular situation.*

The second group of individuals to be identified is the assessment team. The major task of this team is to provide information to assist the decision maker(s) is making a choice between decision alternatives. It is recommended that members of the assessment team be selected from both inside and outside the institution. Some questions to be answered concerning selection of team members are:

Who should select the team members?

How many members should be included?

What groups of individuals from outside the institution should be represented on the team?

What groups of individuals from within the institution should be represented on the team?

EXAMPLE: *An assessment team may include one faculty member from each occupational area represented at the institution; the Director of Occupational Education; the Dean of Instruction; the Educational Development Officer; a consultant from a Teacher Education Institution; and a consultant from the State Department of Public Education.*

Some consideration must be given to personnel available for data analysis. If computer facilities are available, then someone with a background in use of the computer should serve as a consultant. Whether or not computer facilities are available, a qualified person should be selected to assist with the data analysis.

1.23. Set budget limitations. State the amount of support for the assessment procedure and the sources of funds or resources available. Since the scope of the assessment is often determined by budget limitations, it may be necessary to assign priorities in order to direct the assessment procedure.

1.24. Plan time schedule. Establish a time schedule for the entire assessment procedure. This schedule should be planned in advance to assure adequate time for the completion of each phase of the assessment. Information reported after decisions have been made is of little value.

EXAMPLE: *See Figure 3.*

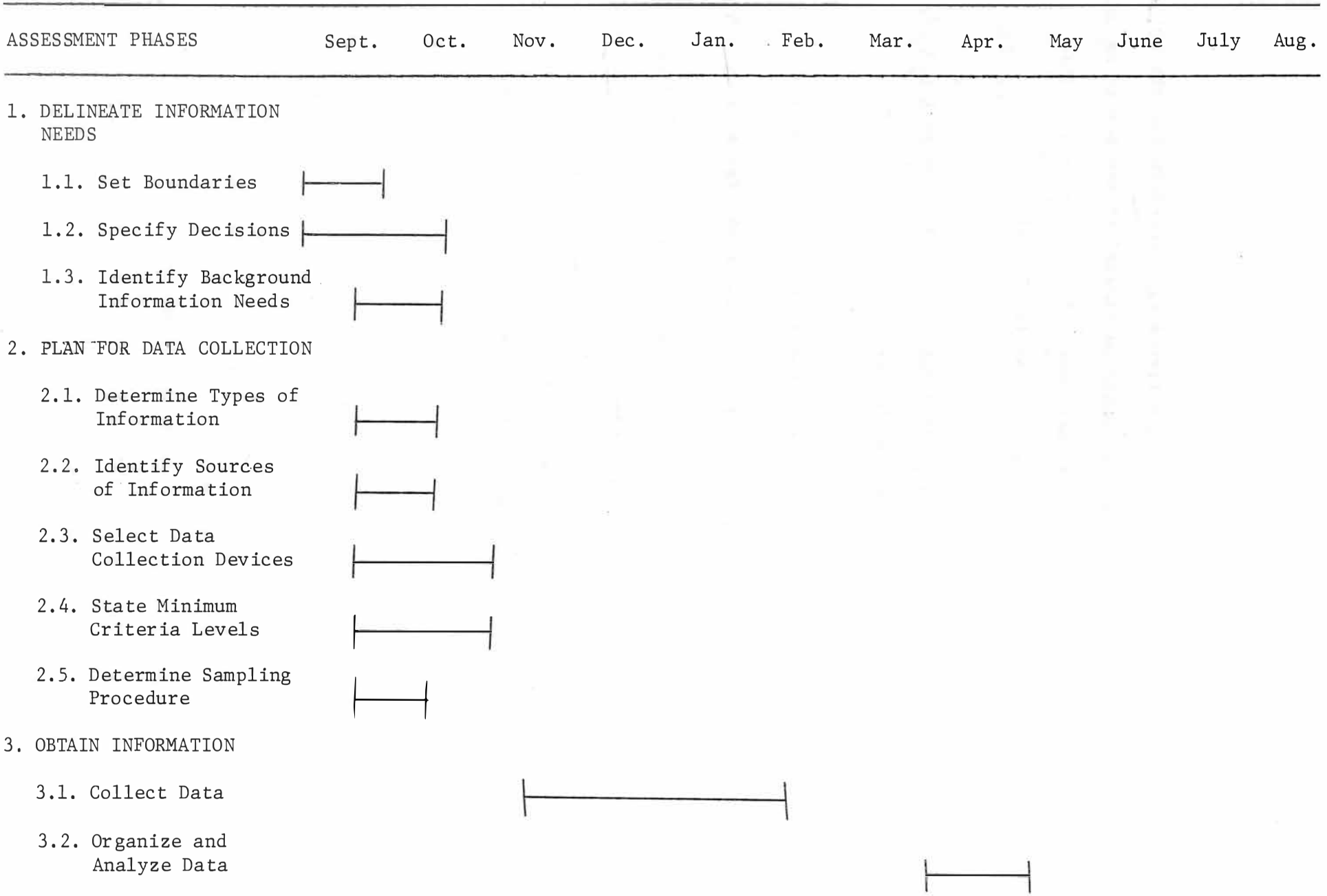
1.25. Identify questions to be answered by the assessment procedure. List specific questions to be answered by the assessment procedure.

EXAMPLES:

1. Do ____% of the students in each course reach the objectives at the level specified?
2. What are the characteristics of the students who failed to reach the objectives?
3. Are the facilities adequate for the achievement of the objectives?
4. Is the expenditure of funds adequate for achieving the objectives?
5. Do faculty members incorporate as many aspects of individualized instruction as feasible in this setting?
6. How effective is the instruction provided by the faculty members as viewed by the students?
7. Do students indicate that course content as well as their total program is relevant and meeting their needs?
8. Do employment opportunities in the region serve as a basis for program planning and development?
9. Do students have a positive attitude toward the individualized courses?
10. Does the faculty have a positive attitude toward individualized instructional approaches?
11. Are students adequately prepared for employment?
12. What feedback have administrators received from various groups?
13. To what extent have expenditures for faculty, facilities, and/or materials changed with the use of individualized instructional approaches?

Figure 3

SAMPLE TIME SCHEDULE



ASSESSMENT PHASES	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
4. PROVIDE INFORMATION FOR DECISION MAKING												
4.1. Prepare Report												
4.2, Make Decisions												

14. How effective are the instructional materials?

15. Can expenditure of funds be justified by benefits received?

1.3 Identify Background Information Needs. Provide background information for the assessment procedure as follows:

1.31. Institutional goals and/or objectives. Obtain institutional goals and/or objectives. These objectives should clearly communicate the intent of the educational institution to the assessment team.

EXAMPLE: *To provide opportunity for the development of skills necessary to enter an occupational field.*

1.32. Program goals. Identify program goals. They should be stated so that the intent of the program(s) to be evaluated is communicated to the assessment team.

EXAMPLE: *To enable both male and female students to perform basic skills as a health assistant that will prepare them for employment.*

1.33. Rationale for decision to implement individualized instructional approach. Obtain reasons for implementing individualized instruction in the courses or programs to be assessed.

EXAMPLE: *Use of individualized instructional approaches may increase the degree to which educational needs of the individual student can be met.*

1.34. Characteristics of the student body. List variables to be considered in the assessment procedure including such characteristics as: age, school status, sex, marital status, achievement, and major area of study.

1.35. Characteristics of the faculty. Include demographic data describing the faculty such as educational background, work experience, number of years using individualized instructional approaches, type and amount of training in the use of individualized instructional approaches, sex, and number of years teaching experience.

1.36. Description of facilities, equipment, and materials. Describe the facilities, equipment, and materials available for use with the program. Facilities include the space, special equipment, and expendables needed for using individualized instructional approaches in the educational program(s).

1.37. Background information about advisory council members. Include such demographic data for the advisory council members as occupation, position, educational level, number of years in the occupation, sex, and number of years serving on the council.

Phase 2. PLAN FOR DATA COLLECTION

Tasks included in this phase are shown in Figure 4. As decisions are made for task 2.1, 2.2, 2.3, and 2.4, record them on a planning sheet similar to the one in Figure 5.

2.1 Determine Types of Information. Identify specifically the information needed to answer questions previously developed for task 1.25.

EXAMPLES: *Questions from 1.25*	*Types of Information*
1	*Achievement*
6	*Reactions to Course and Instructor*
9	*Attitude Toward Individualized Instruction*
11	*Employee Traits*
14	*Assessment of Individualized Instructional Materials*

2.2 Identify Sources of Information. Identify groups of individuals from whom the different types of information can be obtained.

EXAMPLES: *Sources*	*Types*
Student	*Achievement*
Faculty	*Assessment of Individualized Instructional Materials*
Administrators	*Attitude Toward Individualized Instruction*
Employers	*Employee Traits*

2.3 Select Appropriate Data Collection Devices. Select appropriate data collection devices for answering the assessment questions developed in task 1.25 and further clarified in tasks 2.1 and 2.2. Data collection devices are in packet A. A cover sheet relating source of information, type of information, and assessment devices is included with the packet. Specific instructions for use are provided with each instrument. If additional types of information are desired, the instruments for data collection must be developed or obtained.

Figure 4

TASKS FOR PLAN FOR DATA COLLECTION

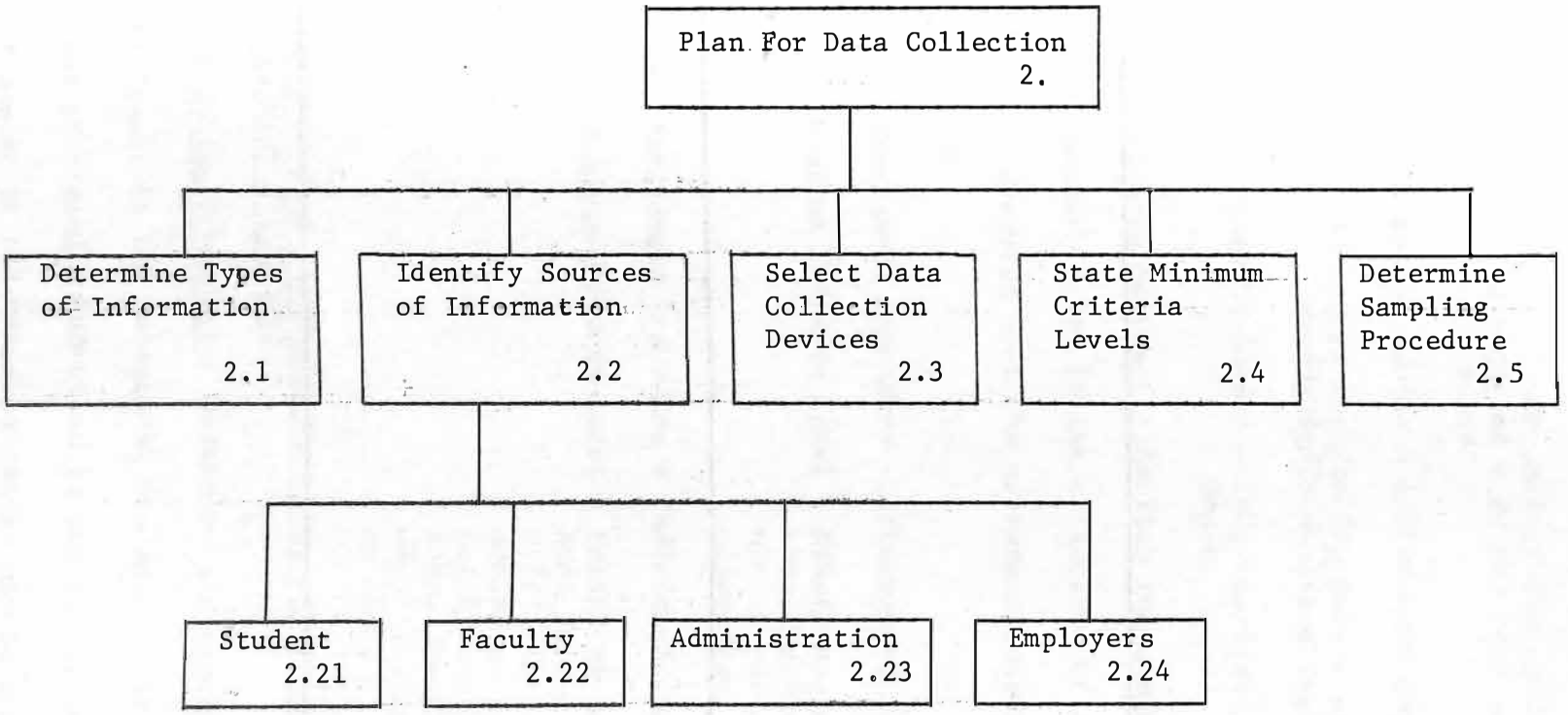


Figure 5

PLANNING SHEET FOR PHASE 2.

TYPES OF INFORMATION 2.1	SOURCE OF INFORMATION 2.2	DATA COLLECTION DEVICE 2.3	MINIMUM CRITERIA LEVELS 2.4

EXAMPLES: *Question 1 - Do 90 per cent of the students in the course achieve at a 90 per cent level on all of the objectives?*

Data Collection Device - Achievement Test.

Question 10 - Does the faculty have a positive attitude toward individualized instructional approaches?

Data Collection Device - Individualized Instruction Attitude Scale.

2.4 State Minimum Criteria Levels. Establish the minimum score or criteria for each assessment measure prior to the collection of data. The statement of these criteria is dependent upon the assessment questions previously developed in task 1.25.

EXAMPLE: 1. *Assessment Procedure - Achievement Test*

Minimum Criteria Level - Ninety per cent of the students should achieve test scores of ninety per cent for all the objectives.

2. *Assessment Procedure - Individualized Instruction Inventory*

Minimum Criteria Level - Establish acceptable scores for each factor on the inventory. If a '3', implying that the practice occurs at least half the time, is satisfactory, then an acceptable score for Factor I, Self Evaluation, which included three items, is nine or above.

IT MUST BE REMEMBERED THAT THESE ARE EXAMPLES, AND CRITERIA SHOULD BE ESTABLISHED TO FIT EACH ASSESSMENT SITUATION!

2.5 Determine Sampling Procedure. Determine the procedure to be used for selecting participants in the assessment procedure. If the number of persons within the groups providing information is not too large, all may be included. However, if the number is too large, a sample may be drawn. A sample or samples may be chosen by any random sampling method.

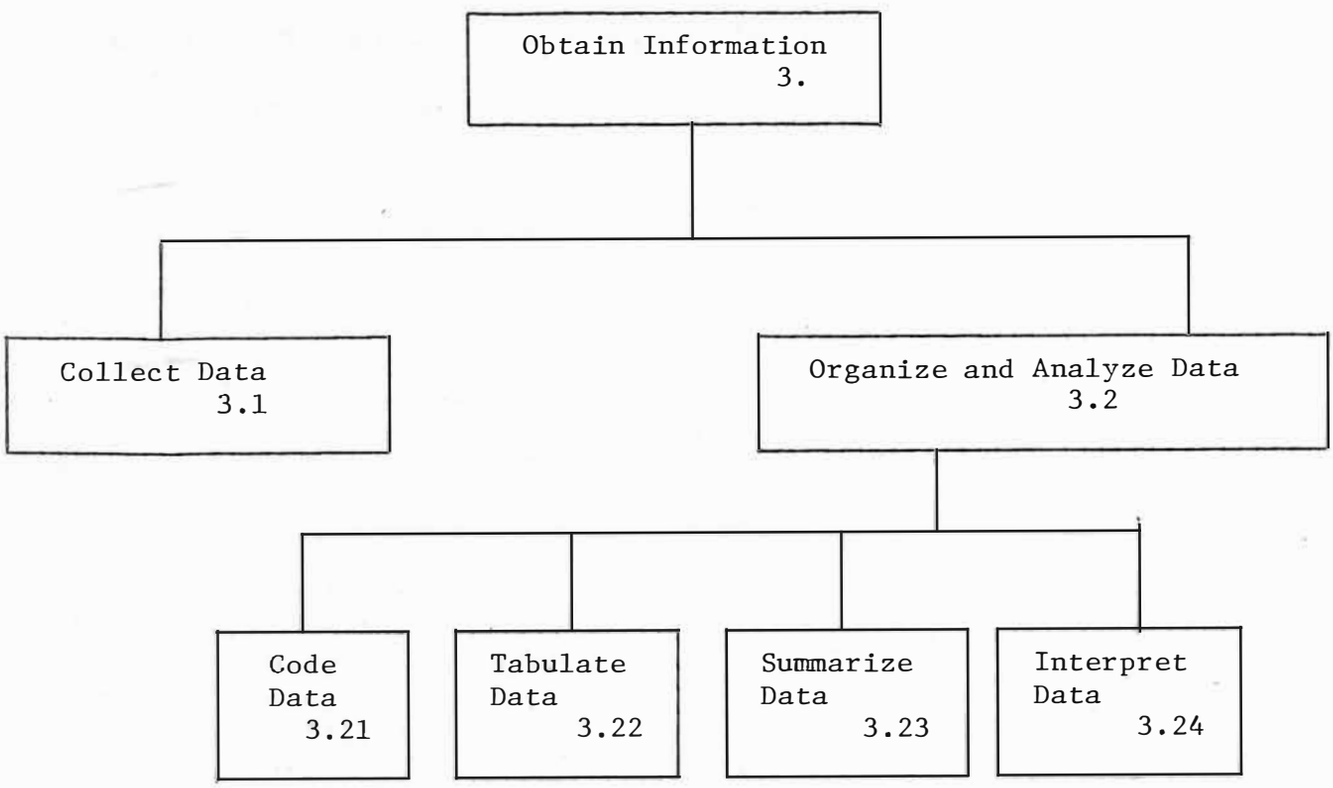
EXAMPLE: *Select a simple random sample using a table of random numbers.*

Phase 3. OBTAIN INFORMATION

Tasks included in this phase are shown in Figure 6.

Figure 6

TASKS FOR OBTAINING INFORMATION



3.1 Collect Data. Develop a schedule for data collection based on the tasks completed in phase 2. Include the following items in the schedule: source of information, sample size, data collection devices, person responsible for seeing that these data are collected, time or schedule for completing data collection, and date actually completed.

EXAMPLE: *See Figure 7.*

Figure 7

DATA COLLECTION

Source of Information	Sample Size	Data Collection Devices	Person Responsible	Schedule	Date Completed
EXAMPLE:					
Faculty	All	Checklist - Individualized Instruction Inventory	John Jones	January	February 10, 1975

3.2 Organize and Analyze Data. Code, tabulate, summarize, and interpret data.

3.21. Code data. Tasks at this stage depend upon whether or not computer services are available. Regardless of the procedure to be used, the consultant referred to in phase 1 will be responsible for assisting with these tasks.

3.22. Tabulate data. Refer to task 3.21.

3.23. Summarize data. Summarize data on the basis of information needed to provide answers to the questions developed in phase 1. Refer to "Suggestions for Criteria Levels and Summarization of Data" within Appendix.E.

EXAMPLE: *Compute or record the number of students who have reached the level of performance previously established.*

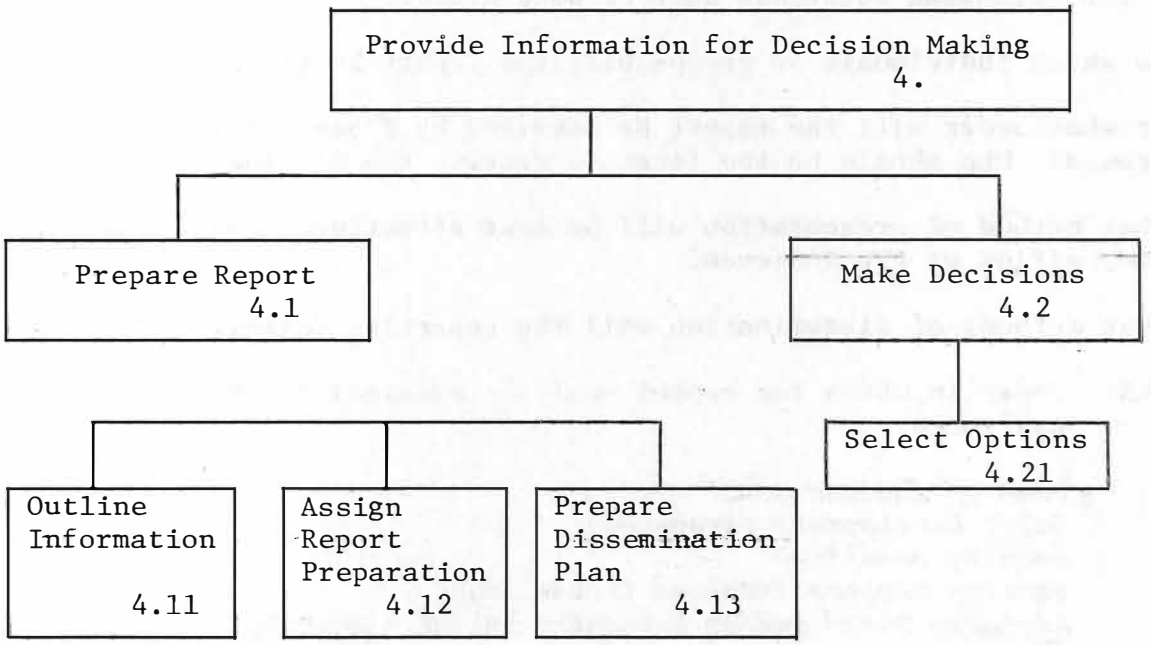
3.24. Interpret data. Summarize the data obtained in relation to the questions developed in task 1.25. Criteria that were previously established in 2.4 are now applied to the available evidence to determine whether or not these criteria have been met.

Phase 4. PROVIDE INFORMATION FOR DECISION MAKING

Tasks to be performed within this task area appear in Figure 8.

Figure 8

TASKS FOR PROVIDING INFORMATION FOR DECISION MAKING



4.1 Prepare Report. Outline information to be included in the report, identify personnel to complete the report, and develop a plan for dissemination of the report.

4.11. Outline information to be included in the report. Present information according to the four phases of the model or use the technical research paper format which includes an introduction, procedures, findings, summary, and implications.

4.12. Assign preparation of report to selected personnel. Select personnel to prepare the report in a suitable form for dissemination to the different audiences. Included in this task is the identification of needed clerical and printing assistance.

4.13. Prepare plan for dissemination of report. Identify audiences to receive the report and methods to be used in transmitting the report. Answers to the following questions must be determined.

1. To which individuals or groups will the report be given?
2. In what order will the report be received by those individuals and/or groups? Who should be the first to receive the findings?
3. What method of presentation will be most effective, considering the composition of the audience?
4. What methods of dissemination will the reporting follow?

EXAMPLE: *Order in which the report would be released to the following audiences:*

Dean of Instruction
Staff Development personnel
Faculty committee
Faculty members involved in the study
Advisory Board and/or Employers in the community

EXAMPLE: *Method of dissemination*

Seminars
Workshops
Placement of complete copies in library, media center, faculty work centers

4.2 Make Decisions. Select the best decision options.

4.21. Select options. The decision maker(s) control(s) the decision to be made based on the data. Possible options are to maintain, modify, expand, contract, or terminate the individualized instructional approach being assessed. Background information collected in the first phase of the

assessment procedure must be considered as results of the data collected in phase three are examined.

EXAMPLE: *If the criterion was established that ninety per cent of the students should achieve ninety per cent on all of the objectives and achievement test scores indicated that this had occurred, then the decision option to maintain the use of individualized instruction in the program could be selected. However, if the data obtained indicated that this criterion had not been met, then a different option would be recommended.*

SUMMARY AND IMPLICATIONS

A recent trend in instructional approaches in North Carolina community colleges/technical institutes has been the use of individualized instruction approaches to meet the varied needs of students. Although large amounts of money have been provided for the development of individualized instruction, evaluative data concerning its effectiveness are lacking. Systematic evaluation can serve as an aid to developing individualized instruction approaches, as a basis for decision making, and as an essential tool for decision makers. Recognizing these facts, the Department of Home Economics Education at the University of North Carolina at Greensboro, in cooperation with the Occupational Research Unit of the State Department of Public Education, conducted a study related to the assessment of individualized instruction approaches.

The study was conducted in two phases. During Phase I, a survey was conducted of occupational education instructors who moderately to highly individualized instruction to determine their practices and attitudes toward individualized instruction. Phase II included the development of a model, evaluative measures, and guidelines for use in assessing individualized instruction approaches.

In Phase I of the study, a master list of 1771 occupational education instructors from 57 community colleges/technical institutes was compiled. All the instructors were then requested to list courses taught and to indicate one a scale from one to five the degree to which each course was individualized, based on a given definition of highly individualized instruction approaches. In spite of rigorous efforts to obtain responses, only 893 instructors replied, providing a 50 per cent return. Respondents were categorized into eleven

occupational areas: agriculture, automotive, business, data processing, distribution, electronics, health, home economics, law and public safety, technical operations, and trade and industry. Participants for the next part of the study were selected from among the 606 occupational education instructors in North Carolina who had indicated that classes they taught were moderately to highly individualized. A random sample was drawn from those instructors in the areas of business, health, and trade and industry, but all instructors who indicated a moderate to high degree of individualization were surveyed in the other eight occupational areas due to the smaller number available. An Individualized Instruction Inventory which was designed to determine demographic data, practices, and attitudes of occupational education instructors was distributed to the instructors. Inventories were returned by 77 per cent of the 354 instructors. Percentages of responses from instructors in different occupational areas were similar.

Demographic data obtained from the respondents were summarized. The percentages of responses were computed at each of the five levels of the scale for each item in Part II (practices) and Part III (attitudes) of the inventory. Discriminant analyses were used to determine which items were most useful in differentiating between those respondents who moderately to highly individualized instruction; which demographic variables were most useful in discriminating between those with high and low practice scores (Part I) and those with positive versus negative attitudes toward individualized instruction (Part III); and to determine the relationship between scores on Part II (practices) and Part III (attitudes).

In Phase II, an assessment model for use in evaluating individualized instruction approaches was developed based on a review of the literature.

Evaluative measures that could be used to obtain the data described in the model were developed and/or selected. A factor analysis was made of the items in the Individualized Instruction Inventory developed in Phase I since the instrument was to be included in the evaluative measures and factor scores are more reliable than scores on single items.. Guidelines were written for use in implementing the assessment model.

Major Findings

Phase I

Demographic Data

1. Respondents were representative of different age categories.
2. Sixty-five per cent of the respondents were male.
3. Only one-fourth of the respondents had received some credits beyond the bachelor's degree while less than three per cent held doctorates.
4. Almost 40 per cent of the respondents had received training in the use of individualized instruction through in-service training programs or workshops and 19 per cent through college or university courses.
5. Almost one-fourth of the instructors had used an individualized approach to instruction for one year or less.

Data Related to Specific Aspects of Individualized Instruction

1. Over 70 per cent of the instructors individualized instruction for all students in the class and indicated that materials reflected varying levels of difficulty.
2. Over one-third of the respondents reported that materials reflecting varying levels of difficulty were available for the same learning activity some of the time.

3. Particular units within the course were individualized by over 44 per cent of the respondents, rather than the entire course (35 per cent), or selected lessons (10 per cent).

4. In order to individualize instruction more effectively, respondents indicated, ranked from the highest percentage of affirmative responses to the lowest, a need for more time, more training, smaller classes, more equipment, more paraprofessional help, and more cooperation from the school administration.

Practices Related to Individualized Instruction

1. Over 75 per cent of the instructors reported that students were encouraged to check their own work and determine reasons for their errors, were evaluated on their performance in relation to stated objectives and established standards of performance, and that the instructor worked with students and/or groups on a one-to-one basis.

2. Approximately 50 per cent of the respondents indicated that students worked at their own rate of speed, used teacher-made materials, worked on different assignments, and that work was evaluated when students believed that their work was ready for evaluation.

3. Less than 20 per cent of the instructors indicated that students were allowed to select the learning activities for use in accomplishing the objectives or to select what they wanted to learn within the context of the course, that information from school records was used for placing students in the sequence of learning activities, that paraprofessional personnel were available, and that students may enter the course of instruction at any time during the semester.

Attitudes Toward Individualized Instruction

1. Two-thirds or more of the instructors indicated that they believed that students in individualized classes have more opportunities to experience success, are more likely to profit from mistakes, engage in activities more likely to be meaningful to them, are more involved in decisions made for and about the class, and are more likely to develop a positive attitude toward learning than students in traditional classes. In addition, it was reported that individualized instruction allows students more choice in what they learn and that it requires more instructor time.

2. Less than 20 per cent of the respondents agreed that students in individualized classes lack incentive to learn, work under more pressure, and are more likely to be bored. Less than 20 per cent also agreed that individualized instruction places too much responsibility on students and tends to lower educational standards for most students.

Discriminant Analysis

1. The single item that best discriminated between those respondents who rated themselves as individualizing instruction to a moderate degree and those who rated themselves as highly individualizing instruction was, "Paraprofessional personnel work with individual students on a one-to-one basis."

2. Twenty-one items representing practices used by instructors in individualizing instruction were useful in differentiating between those with high and low attitude scores.

3. Eight attitude statements were effective in discriminating among respondents with low, average, and high practice scores.

4. Demographic variables useful in differentiating between instructors with high and low attitude scores, in the order of importance, were number of years using individualized approaches, sex, type of training in individualizing instruction approaches, and years of teaching experience. The instructors with the most positive attitude scores were more likely to be women, who had used the individualized approach a number of years, had received training in the use of individualized instruction through a college or university course rather than through in-service training, and who had taught for a relatively short period of time.

5. Demographic variables useful in discriminating between those respondents with high, average and low practice scores were educational background, number of years using individualized instruction, type of training, and age. Instructors with higher practice scores were likely to have less professional training, to have used individualized instruction longer, to have received training in individualized instruction via a college or university course rather than through in-service training, and to be older.

Phase II

Factor Analysis. A factor analysis was made of the items relating to practices in Part II of the Individualized Instruction Inventory since the instrument was to be used as one of the evaluative measures to accompany the model. Seven factors were derived from the analysis and varimax rotation of the 43 items, ranging in size from two to five items. The factors were labeled: self-evaluation, student involvement in decision making, flexibility of pacing, types of evaluation, intra-class groupings, information base for placement of students, and materials and equipment.

Two factors were derived from the factor analysis and varimax rotation of the 25 items in Part III (attitudes) of the inventory. Factor I, degree of learning, and Factor II, student involvement, contained five and six items, respectively.

Discriminant Analysis. Of the sixteen items which were useful in discriminating between those who rated themselves as highly or moderately individualizing instruction, nine were also included in the factor analysis. This gave additional support for using the factor analysis results in the revision of the Inventory.

Model, Evaluative Measures, and Guidelines. Following an extensive review of the literature, a model was developed to assess individualized instruction approaches in occupational education at the community college and technical institute level. The four phases of the assessment model were as follows: 1) delineate information, 2) plan for data collection, 3) obtain information, and 4) provide information for decision making. Tasks to be completed within each phase of the model were identified.

Types of information needed and sources from which it could be obtained were identified. Instruments were either selected or developed for use in collecting the desired data (Appendix E). Evaluative measures that may be purchased for use in data collection are the Illinois Course Evaluation (CEQ) and the Minnesota Satisfactoriness Scales. The remainder of the instruments included for use with the model were developed during the study.

After the model was developed and instruments were selected or developed for use in data collection, a Task Force meeting was held to critique the model and evaluative measures. Members of the Task Force were instructors from various occupational areas in community colleges/technical institutes

and selected state department personnel from the Occupational Research Unit and the Department of Community Colleges. Suggestions and recommendations made by the Task Force were helpful in making revisions.

Following the development of the model and the selection and/or construction of instrumentation, guidelines were written for use in implementing the assessment procedure. These provided further clarification of the tasks to be completed within each phase of the model.

Field Test of the Model, Evaluative Measures, and Guidelines. The model and guidelines for implementation were reviewed by the heads of two occupational education departments and selected instructors within those two departments in two technical institutes in North Carolina. Minor revisions were made in the guidelines on the basis of their suggestions.

Selected evaluative measures were field tested by students in 20 occupational education classes in the two technical institutes. Three hundred and eleven students responded to the Reactions to Course, Instructor, and Instructional Materials instrument. The Individualized Instruction Attitude Scale was completed by 37 students. Five instructors completed the Individualized Instruction Inventory. Means for each item on the Reaction to Course, Instructor, and Instructional Materials and the Individualized Instruction Attitude Scale were obtained for each instructor. Responses were made in each category for each item indicating that items were at least somewhat descriptive of the range of attributes and attitudes held by instructors. Scores for each factor for each instructor were derived for the Individualized Instruction Inventory. The resulting range of scores for each of the factors would appear to indicate that this instrument would be useful in assessing degree to which instructors individualize instruction.

Implications

The findings were interpreted and the implications are stated with an awareness of the limitations that existed in this study. Implications drawn from this study may provide a frame of reference for administrative personnel at the state level, community college/technical institute administrators and instructors, and university personnel who are responsible for curriculum development and program planning.

1. If individualized instruction approaches are to be utilized to a greater degree, monies must be allocated for human and material resources.
2. If instruction is to be highly individualized, more attention should be given to the following:
   - greater use of diagnostic information gained from school records and interviews
   - greater use of paraprofessionals
   - more flexibility in times students are permitted to enter and complete course requirements
   - more involvement of students in selection of concepts for study and learning activities
   - establishment of objectives on individual or sub-group basis
3. Since working at one's own rate of speed is characteristic of individualized instruction, this aspect could be implemented to a greater degree than is presently being practiced. Only 50 per cent of the participants in this study allowed students to proceed at their own rate of speed most of the time.
4. Since teachers who had received training in the use of individualized instruction through a college or university course were

more likely to have higher practice and attitude scores, consideration should be given to improved articulation between community college/technical institute and university personnel. The universities could provide more emphasis on the use of individualized instruction approaches and community college/technical institute instructors could be encouraged to avail themselves of these opportunities. University personnel could provide instruction for community college/technical institute instructors on the development, use, and evaluation of individualized instruction approaches.

Further Research

It is recommended that further research be conducted to:

1. Determine reasons instructors who were not included in the study are not using an individualized instruction approach.
2. Field test the entire model in a variety of settings since only segments of the model have been tested in a limited number of settings.

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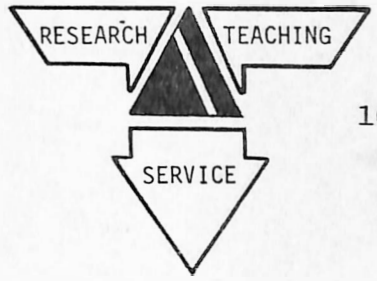
APPENDIX A

LETTER TO THE PRESIDENTS OF COMMUNITY COLLEGES AND TECHNICAL INSTITUTES

HOME ECONOMICS CENTER FOR RESEARCH

SCHOOL OF HOME ECONOMICS
THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO



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September 9, 1974

The Home Economics Center for Research at the University of North Carolina at Greensboro is cooperating with the Occupational Research Division of the State Department of Public Instruction and the Department of Community Colleges in a research study. The purposes of the first phase of the study are to identify aspects of the Occupational Education programs in the Technical Institutes and Community Colleges of North Carolina which have been individualized and to determine the degree to which individualization has been implemented in each institution. The second phase of the study will involve the development and dissemination of a model, evaluative measures, and guidelines for assessing the effectiveness of individualized instruction approaches.

In the first phase of this study we need your assistance in identifying occupational education instructional personnel in your institution. On the enclosed sheet please list their names, occupational area of instruction, and school address. These instructional personnel will then be included in the survey to determine the degree to which instruction is individualized in occupational education in the Technical Institutes and Community Colleges in North Carolina. The names of all occupational education instructional personnel are needed regardless of the degree to which they are using individualized approaches.

Please return the enclosed sheet with the requested information in the self-addressed stamped envelope by September 25th. Your prompt attention to this request will be greatly appreciated.

Sincerely,

Mildred Johnson, Professor
Home Economics Education

Barbara Clawson, Associate Professor
Home Economics Education

H.E. Beam, Chairman
N.C. Public Community College
President's Association

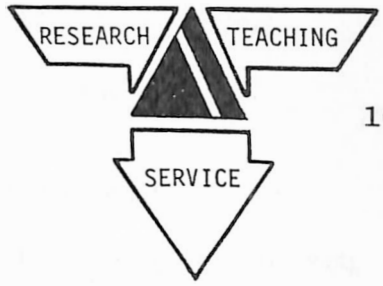
GREENSBORO, NORTH CAROLINA 27412
919/379-5980

APPENDIX B

LETTER, INSTRUCTION SHEET, AND REPLY CARD

HOME ECONOMICS CENTER FOR RESEARCH

SCHOOL OF HOME ECONOMICS
THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO



October 25, 1974

Have you ever wondered whether your approach to individualizing instruction was similar to that of other occupational instructional personnel in the community colleges and technical institutes? Your assistance is urgently needed to help determine the degree to which individualized instruction approaches are used in North Carolina. This information is being collected in the first phase of a study supported by the Occupational Research Unit of the State Department of Public Instruction and the Department of Community Colleges in cooperation with the Home Economics Center for Research at the University of North Carolina at Greensboro.

The second phase of the study will involve the development of a procedure which could be used by instructional personnel to examine the effectiveness of individualized instruction approaches they use. The results of this study will be made available to community college and technical institute personnel.

Please complete the enclosed postage-paid, self-addressed postcard and return it by November 6. The information requested is necessary as a part of the first phase of this study.

Your cooperation and prompt reply will be greatly appreciated.

Sincerely,

Mildred Johnson, Professor
Home Economics Education

Barbara Clawson, Associate Professor
Home Economics Education

Mrs. Katherine Therrell, Research Associate

Enclosures

DIRECTIONS FOR COMPLETING THE ATTACHED POSTAL CARD

I. On the top portion of the card below, please list for each course you will teach WINTER QUARTER (1) the title given in the school catalog, (2) the number of sections you teach, and (3) the number of credit hours. If courses you teach are not offered for credit, write a zero in the column.

II. Before completing the bottom portion of the card, read the following definition of individualized instruction.

Individualized instruction is a process which involves adapting instructional procedures to fit each student's individual needs so as to maximize his learning and development. Among characteristics of highly individualized programs are the following:

1. Instruction is designed for individual students rather than for the entire class.
2. Students work at their own rate of speed.
3. Each student performs learning activities when and where he chooses.
4. Students play an important role in determining their own instructional program.
5. Each student is placed in a learning sequence according to his learning readiness.
6. Students may choose from a variety of learning activities, materials, and media to achieve each objective.
7. More teacher time is spent working with individuals and small groups than lecturing or presenting information to the entire class.
8. Diagnostic methods are frequently used to determine learning difficulties.
9. Emphasis in evaluation is on mastery of objectives by each student.

III. Although it is assumed that all instructors individualize to some degree, it is also recognized that this degree varies among teachers, depending on the nature of the course and institutional regulations. Please place a check below the number which represents the degree to which instruction is individualized for each of the subjects you listed on the top portion of the card.

NAME _____

	SUBJECT NAME	NO. OF SECTIONS	HOURS CREDIT
1.			
2.			
3.			
4.			

DEGREE OF INDIVIDUALIZATION

	Slight		Moderate		High
	1	2	3	4	5
1.					
2.					
3.					
4.					

APPENDIX C

INDIVIDUALIZED INSTRUCTION INVENTORY

Individualized Instruction Inventory

PART I

Instructions: For each item, please circle the number corresponding to your response. All responses will be confidential. Information reported from this instrument will be presented only in summary form. It is very important that you respond to Questions 7 through 16 as they relate to the class specified in the attached cover letter.

1. Years of age:
   (1) 25 or less
   (2) 26 to 30
   (3) 31 to 35
   (4) 36 to 40
   (5) 41 to 45
   (6) 46 to 50
   (7) over 50

2. Sex:
   (1) Male
   (2) Female

3. Number of years teaching experience including this year:
   (1) 5 or less
   (2) 6 to 10
   (3) 11 to 15
   (4) 16 to 20
   (5) 21 to 25
   (6) over 25

4. Number of years business or industrial experience in occupational area in which you are teaching:
   (1) 5 or less
   (2) 6 to 10
   (3) 11 to 15
   (4) 16 to 20
   (5) 21 to 25
   (6) over 25

5. Educational background:
   (1) High School Diploma
   (2) 1 to 2 years post-secondary education
   (3) 3 to 4 years post-secondary education
   (4) Credit beyond Bachelor's Degree
   (5) Master's Degree
   (6) Credit beyond Master's Degree
   (7) Doctor's Degree

6. Training in individualized instruction:
   (1) No formal training (self-instruction)
   (2) In-service training program or workshop
   (3) Course taken at a college or university
   (4) College or university extension course

7. Number of years using individualized approach to instruction including this year:
   (1) 0 to 1
   (2) 2
   (3) 3
   (4) 4
   (5) 5
   (6) 6 or more

8. For whom do you individualize instruction?
   (1) All students
   (2) Particular groups of students
   (3) Only selected students
   (4) No one

   If you selected answer 2 or 3, please specify the type of student or group of students for whom you individualize instruction.

   _____

9. For what part of the course do you individualize instruction?
   (1) The entire course
   (2) Particular units within the course
   (3) Selected lessons
   (4) No part of the course

10. Does your school have an instructional resource center where a variety of media (audio, video, as well as printed material) are available to students?
   (1) Yes (2) No (If no, go to Item 12)

11. How many hours each week is your school instructional resource center open to students in your class?
   (1) 65 or more (2) 35 to 64 (3) 11 to 34 (4) 10 or less

12. What grading system do you use for reporting student progress?
   (1) Students are given a rating or a grade for each of a number of competencies.
   (2) Students are graded on a pass or fail basis.
   (3) Students are graded by the traditional A, B, C system.

13. Do you coordinate a cooperative training program (one in which students are paid for on-the-job experience)?
   (1) Yes (2) No (If no, go to Item 15)

14. Which of the following determines admission to your cooperative program?
   (1) Proficiency test scores
   (2) Specific prerequisite courses
   (3) Number of credit hours completed
   (4) Other. Please specify _____

15. Does your class use materials which reflect varying levels of difficulty?
   (1) Yes (2) No

16. Are instructional materials reflecting varying levels of difficulty available for the same learning activity?
   (1) Most of the time
   (2) Some of the time
   (3) Seldom
   (4) Never

17. How is the level of material used by each student determined? (More than one answer can be circled)
   (1) By interest
   (2) By career goal
   (3) By pretest score
   (4) By reading ability
   (5) By math ability
   (6) Other, please specify _____

In order to individualize instruction more effectively, I need:

18. More training
19. Smaller classes
20. More equipment
21. More paraprofessional help
22. More cooperation from the school administration
23. More time
24. Other, please specify _____

PART II

Instructions: Read each of the items below and circle the number at the right which best represents the degree to which the statement applies to your instructional program. Remember to respond in relation to the class indicated in the attached cover letter.

	Seldom Applies 1	2	Applies About Half the Time 3	4	Applies Most of the Time 5
1.	Students with similar needs are grouped for lessons.				1 2 3 4 5
2.	The instructional program includes learning experiences related to the course which involve student interaction with the neighborhood and/or business community.				1 2 3 4 5
3.	Diagnostic information is obtained by closely observing and analyzing students' work.				1 2 3 4 5
4.	Before suggesting any change of activity, diagnostic attention is given to the particular student and his level of performance.				1 2 3 4 5
5.	Work is evaluated when students feel their work is ready for evaluation.				1 2 3 4 5
6.	A collection of student work is kept for use in evaluating progress over a period of time.				1 2 3 4 5
7.	Student self-evaluation is an important consideration in determining student grades.				1 2 3 4 5
8.	Students are encouraged to give advice to one another concerning daily assignments.				1 2 3 4 5
9.	Different objectives are established for each student on the basis of individual interests, abilities, and/or goals.				1 2 3 4 5
10.	Different objectives are established for subgroups of students within the class on the basis of similar interests, abilities, and/or goals among subgroup members.				1 2 3 4 5
11.	Desks, chairs, and equipment can be moved about easily to provide a flexible learning environment.				1 2 3 4 5
12.	Student work is evaluated at set intervals.				1 2 3 4 5
13.	Objectives are written to include the desired student behavior, the conditions under which the behavior is shown, and the accepted standard of performance.				1 2 3 4 5

Seldom Applies 1	2	Applies About Half the Time 3	4	Applies Most of the Time 5

14.	Students select their own concepts for study (what they want to learn) within the context of the course.	1	2	3	4	5
15.	Each student decides upon the learning activity he will use in order to accomplish his objective.	1	2	3	4	5
16.	Students select instructional materials and media that appeal to them from the available supply of learning resources.	1	2	3	4	5
17.	Teacher-made materials such as work sheets, games, transparencies, and charts are used by students.	1	2	3	4	5
18.	At their convenience, students are able to use audio-visual equipment such as records and record players; tape recordings and tape recorders; film strips, slides, 35 mm films, and projection equipment.	1	2	3	4	5
19.	Students have access to classroom and/or laboratory facilities whenever the school is open.	1	2	3	4	5
20.	The instructor works with individual students and/or small groups on a one-to-one basis.	1	2	3	4	5
21.	Paraprofessional personnel work with individual students on a one-to-one basis.	1	2	3	4	5
22.	Paraprofessional personnel work with small groups of students.	1	2	3	4	5
23.	Students are free to work in different areas of the classroom.	1	2	3	4	5
24.	Within a class period, students are working on different assignments.	1	2	3	4	5
25.	Intra-class groupings are formed to serve a variety of instructional purposes.	1	2	3	4	5
26.	Intra-class groupings are changed frequently.	1	2	3	4	5
27.	The learning activity for each student to use in accomplishing his objective is prescribed by the instructor.	1	2	3	4	5
28.	Each student progresses through the course of instruction independently of other class members.	1	2	3	4	5

Seldom Applies		Applies About Half the Time		Applies Most of the Time
1	2	3	4	5

29.	Each student, alone or with his instructor, decides upon the competency level he should reach in order to accomplish his objectives.	1	2	3	4	5
30.	Students are responsible for setting their own time schedules for completing assignments.	1	2	3	4	5
31.	Students are encouraged to find and correct their own mistakes.	1	2	3	4	5
32.	Students are encouraged to determine the reasons for their errors.	1	2	3	4	5
33.	Students have opportunities to check their own work.	1	2	3	4	5
34.	Students are evaluated on their performance in relation to the stated objectives.	1	2	3	4	5
35.	Students are permitted to enter the course of instruction at any time during the quarter.	1	2	3	4	5
36.	Students are permitted to complete the course of instruction at any time during the quarter.	1	2	3	4	5
37.	Students are evaluated according to their percentage of improvement as indicated by their performance on a pre-test and a post-test.	1	2	3	4	5
38.	Students are allowed to achieve different levels of proficiency when appropriate.	1	2	3	4	5
39.	Information obtained from pretests is used for placing students in the proper sequence of learning activities.	1	2	3	4	5
40.	Information obtained from previous school records is used for placing students in the proper sequence of learning activities.	1	2	3	4	5
41.	Information obtained from interviews with students is used for placing students in the proper sequence of learning activities.	1	2	3	4	5
42.	Students may work at their own rate of speed.	1	2	3	4	5
43.	Students are evaluated according to established standards of performance.	1	2	3	4	5

PART III

Instructions: The following statements refer to opinions regarding individualized instruction. Please circle a number from 1 to 5 indicating the extent to which you agree or disagree with each statement. It is no longer necessary to use the assigned class as a basis for your rating. Think of your reactions to individualized instruction in general.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Example: Individualized instruction as compared to traditional instruction places more responsibility of learning on the student. 1 2 3 (4) 5

This person agreed with the item and has indicated this by circling "4" (Agree).

Do not spend too much time on any particular item. There are no right or wrong answers; your honest reactions to these statements as they relate to your class are desired. Please respond to each item. Responses will be confidential, and all the information reported from the instrument will be presented only in summary form.

A. As compared to classes using traditional instructional approaches, students in individualized classes:

1.	learn more	1	2	3	4	5
2.	are more likely to be bored	1	2	3	4	5
3.	engage in activities more likely to be meaningful to them	1	2	3	4	5
4.	are more likely to profit from mistakes	1	2	3	4	5
5.	have more opportunities to experience success	1	2	3	4	5
6.	are more highly motivated to learn	1	2	3	4	5
7.	work under more pressure	1	2	3	4	5
8.	are more likely to waste time	1	2	3	4	5
9.	lack incentive to learn	1	2	3	4	5
10.	are better prepared to meet the demands of business and industry for workers with diverse talents and skills	1	2	3	4	5
11.	are more likely to develop a positive attitude toward learning	1	2	3	4	5
12.	are more likely to continue learning after completing the course	1	2	3	4	5
13.	are more involved in decisions made for and about the class	1	2	3	4	5

B. As compared to traditional instruction, individualized instruction:

1.	is less likely to provide the common body of knowledge all students need to possess	1	2	3	4	5
2.	allows students more choice in what they learn	1	2	3	4	5

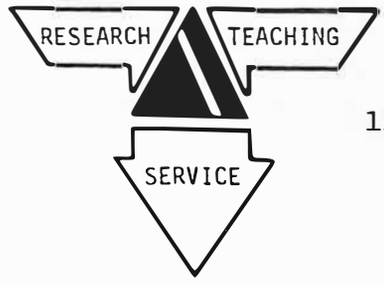
3.	emphasizes the processes of learning at the expense of subject matter content	1	2	3	4	5
4.	promotes critical thinking	1	2	3	4	5
5.	results in less control of the class	1	2	3	4	5
6.	tends to lower educational standards for most students	1	2	3	4	5
7.	is not an appropriate technique to use for a wide variety of subjects	1	2	3	4	5
8.	is more democratic than traditional instruction	1	2	3	4	5
9.	places too much responsibility on students	1	2	3	4	5
10.	requires more instructor time	1	2	3	4	5
11.	should be encouraged for most occupational classes at the technical institute and community college level	1	2	3	4	5
12.	increases instructional costs	1	2	3	4	5

APPENDIX D

COVER LETTER TO OCCUPATIONAL EDUCATION DIRECTOR

HOME ECONOMICS CENTER FOR RESEARCH

SCHOOL OF HOME ECONOMICS
THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO



February 13, 1975

Dear Occupational Education Director

Thank you for your assistance in collecting the data for the research study we are conducting. Your cooperation is needed if the results of the study are to be meaningful.

This envelope contains a cover letter, a questionnaire, and a return envelope for each instructor listed on the attached sheet. The cover letter accompanying the questionnaire directs the recipient to respond for a particular class he teaches. It is therefore essential that each instructor receive the specific set of materials addressed to him.

Your help in distributing the enclosed material to the occupational instructors at your institution who were selected for our sample is appreciated.

Sincerely,

Mrs. Katherine B. Therrell
Research Associate

GREENSBORO, NORTH CAROLINA 27412
919/379-5980

APPENDIX E

INSTRUMENTATION

DATA COLLECTION

I. Format for Collection of Data

II. Data Collection Devices

A. Student Assessement Devices

1. Reactions to Course, Instructor, and Instructional Materials

2. Illinois Course Evaluation

3. Individualized Instruction Attitude Scale

B. Faculty Assessment Devices

1. Individualized Instruction Inventory

2. Individualized Instruction Attitude Scale

3. Assessment of Individualized Instructional Materials

C. Administrator Assessment Devices

1. Individualized Instruction Attitude Scale

2. Cost-Benefit Analysis

D. Employer Assessment Devices

1. Employee Performance

2. Employment Checklist

3. Assessment of Employee Traits

4. Minnesota Satisfactoriness Scales

III. Data Summarization Forms

1. Profile for Individualized Instruction Attitude Scale

2. Profile for Individualized Instruction Inventory

IV. Suggestions for Criteria Levels and Summarization of Data

I. FORMAT FOR COLLECTION OF DATA

SOURCE OF INFORMATION	TYPES OF INFORMATION	ASSESSMENT DEVICE
Student	Achievement	Achievement Test
	Course, Instructor and Instructional Materials Assessment	Reactions to Course, Instructor, and Instructional Materials
		Illinois Course Evaluation
	Attitude toward Individualized Instruction	Individualized Instruction Attitude Scale
Faculty	Use of Individualized Instructional Approaches	Individualized Instruction Inventory
	Attitude Toward Individualized Instruction	Individualized Instruction Attitude Scale
	Assessment of Instructional Materials	Assessment of Individualized Instructional Materials
Administrators	Attitude Toward Individualized Instruction	Individualized Instruction Attitude Scale
	Analysis of Cost per Student	Cost-Benefit Analysis
Employers	Performance of Employee on the Job	Employee Performance
	Employment Status of Employee	Employment Checklist
	Employee Traits	Assessment of Employee Traits
	Satisfactoriness of Employee	Minnesota Satisfactoriness Scale

DATA COLLECTION DEVICES

STUDENT ASSESSMENT DEVICES

REACTIONS TO COURSE, INSTRUCTOR, AND INSTRUCTIONAL MATERIALS

Course Title _____ Date _____

DIRECTIONS: Describe your status as a student by checking the appropriate response.

1. I am a: ___ a. Female, under 25 ___ b. Male, under 25
___ c. Female, 25 or over ___ d. Male, 25 or over

2. I am a _____ Full-time student _____ Part-time student

3. I have attended this school: _____ 1 - 3 quarters
_____ 4 - 6 quarters
_____ 7 or more quarters

4. Expected grade for this course:

_____ A _____ C _____ Other (Specify)
_____ B _____ D or F _____

5. I had sufficient preparation to enroll in this course. ___ Yes ___ No.

Part I. DIRECTIONS FOR INSTRUCTOR ASSESSMENT: The following statements describe instructor attributes. Circle the number which best represents your rating as to whether the statement is:

1. Not Descriptive (ND)
2. Somewhat Descriptive (SD)
3. Undecided (U)
4. Descriptive (D)
5. Highly Descriptive (HD)

Instructor Attributes	ND	SD	U	D	HD
The Instructor:					
1. Knows the subject matter.	1	2	3	4	5
2. Is willing to work with students other than during scheduled class time.	1	2	3	4	5
3. Accepts constructive criticism.	1	2	3	4	5
4. Grades fairly.	1	2	3	4	5
5. Is aware of students needs, abilities, and interests.	1	2	3	4	5
6. Establishes a classroom and/or laboratory situation conductive to learning.	1	2	3	4	5
7. Makes me think.	1	2	3	4	5

Instructor Attributes (Continued)	ND	SD	U	D	HD
8. Respects students.	1	2	3	4	5
9. Has a sense of humor.	1	2	3	4	5

10. Comments _____

DIRECTIONS FOR COURSE ASSESSMENT: Read each statement or phrase carefully and decide how well it describes the course. Please rate each statement or phrase by circling the numbers as follows:

1. Not Descriptive (ND)
2. Somewhat Descriptive (SD)
3. Undecided (U)
4. Descriptive (D)
5. Highly Descriptive (HD)

Overall Course Assessment	ND	SD	U	D	HD
1. Content was neither too difficult nor too easy.	1	2	3	4	5
2. I was unsure of what I was supposed to be learning.	1	2	3	4	5
3. Objectives for each set of learning experiences or assignments were clearly stated and discussed.	1	2	3	4	5
4. Learning experiences and assignments were helpful in reaching objectives.	1	2	3	4	5
5. At the end of the course I was still faced with many unanswered questions about the material covered.	1	2	3	4	5
6. Tests, exams, and/or other evaluation techniques were fair assessments of what was taught.	1	2	3	4	5
7. Evaluation occurred frequently throughout the course.	1	2	3	4	5
8. I would recommend that changes be made in the course before using it with other students.	1	2	3	4	5
9. Evaluation materials helped me to identify my strengths and weaknesses.	1	2	3	4	5
10. A variety of materials and learning experiences were available for student selection.	1	2	3	4	5
11. After completing the course, I was more interested in and/or favorably impressed with the general subject matter than I was before taking the course.	1	2	3	4	5

Overall Course Assessment (Continued)	ND	SD	U	D	HD
The course:					
12. was designed to adequately develop skills and competencies.	1	2	3	4	5
13. covered the material stated in the course description.	1	2	3	4	5
14. was well organized.	1	2	3	4	5
15. directly contributed to preparation for employment.	1	2	3	4	5
16. would be one I would recommend to others.	1	2	3	4	5
17. was worthwhile.	1	2	3	4	5
18. Comments _____					

DIRECTIONS FOR ASSESSMENT OF INSTRUCTIONAL MATERIALS: Please be honest in answering the following questions concerning instructional materials used in this course. Your assessment will be helpful in determining whether or not revisions are needed. Circle the number which best represents your rating of instructional materials according to the following key:

1. Not Descriptive (ND)
2. Somewhat Descriptive (SD)
3. Undecided (U)
4. Descriptive (D)
5. Highly Descriptive (HD)

Instructional Materials	ND	SD	U	D	HD
The instructional materials:					
1. were well organized. The concepts were highly related to each other.	1	2	3	4	5
2. were redundant. I was bored by the repetition of ideas.	1	2	3	4	5
3. contained irrelevant information.	1	2	3	4	5
4. were designed so that I could easily follow the instructions and complete the activities.	1	2	3	4	5
5. contained many unfamiliar words. I often did not understand what was going on.	1	2	3	4	5
6. included pre-test and post-test questions which adequately tested my knowledge of the main points of the course.	1	2	3	4	5

Instructional Materials (Continued)	ND	SD	U	D	HD
7. included questions which provided valuable feedback on how I was doing.	1	2	3	4	5
8. were available for use when needed.	1	2	3	4	5
9. contained activities that seemed like needless busy work.	1	2	3	4	5

Which instructional materials were most helpful in this course?

Which instructional materials were least helpful in this course?

ILLINOIS COURSE EVALUATION QUESTIONNAIRE (CEQ)
Copyright 1972

Description. The Illinois Course Evaluation Questionnaire (CEQ) was developed for use in collecting student attitudes towards a course. Its major purpose is to enable faculty members to collect evaluative information about their teaching. Form 73 of the CEQ (see next page) contains 23 items which may be scored on the following five subscales: General Course Attitude, Course Content, Method of Instruction, Interest and Attention of the Students, and the Instructor. The 46 optional item response section I and the 16 optional item section II allow instructors and departments to include questions that can provide more detailed diagnostic feedback.

Availability. The CEQ is available, upon request, under the following service policy which includes:

1. Supplying forms and directions for administration at a cost of 18¢ per student tested plus postage. Optional item sections cost 6¢ each.
2. Scoring, punching cards, and producing two copies of the results.
3. Sending a maximum of one user's manual with a minimum order of 100 forms; additional manuals are available for 50¢ each.
4. Producing summary results across department or college on the CEQ items and subscales (optional).

Address orders or requests for additional information to:

Office of Instructional Resources
Measurement and Research Division
307 Engineering Hall
University of Illinois
Urbana, Illinois 61801

Phone: 217-333-3490

FORM 73 ILLINOIS COURSE EVALUATION QUESTIONNAIRE CEQ

Measurement and Research Division, Office of Instructional Resources

© The Board of Trustees of The University of Illinois, 1972

MARK:

- SA IF YOU STRONGLY AGREE WITH THE ITEM
- A IF YOU AGREE MODERATELY WITH THE ITEM
- D IF YOU DISAGREE MODERATELY WITH THE ITEM
- SD IF YOU STRONGLY DISAGREE WITH THE ITEM

MARK ONLY ONE RESPONSE PER ITEM USING PENCIL ONLY.

ERASE CHANGED ANSWERS CLEANLY AND COMPLETELY.

SAMPLE MARKS a) b)

1 COURSE CODE

2 ARE YOU: FRESH, SOPH, JUNIOR, SENIOR, GRAD, OTHER

3 YOUR EXPECTED GRADE IN THIS COURSE: A, B, C, D, E

4 ARE YOU TAKING THIS COURSE FOR: PASS/FAIL, YES, REQUIRED, NO, ELECTIVE

5 SPECIAL CODE

6 THIS COURSE IS WITHIN YOUR: MAJOR, MINOR, OTHER

7 ARE YOU: MALE, FEMALE

8 SEMESTER: FALL, SPRING, SUMMER

9 RATE THE FOLLOWING: COURSE IN GENERAL; MAJOR INSTRUCTOR; COURSE CONTENT — EXCELLENT, VERY GOOD, GOOD, FAIR, POOR, VERY POOR

(Number)

(Name)

THE NAME AND NUMBER OF THIS COURSE IS

THE MAJOR INSTRUCTOR OF THIS COURSE IS

PLEASE PRINT:

BEGIN OPTIONAL ITEM SECTION I

1	SA A D SD	I would take another course that was taught this way.
2	SA A D SD	The instructor seemed to be interested in students as persons.
3	SA A D SD	I would have preferred another method of teaching in this course.
4	SA A D SD	It was easy to remain attentive.
5	SA A D SD	The instructor did NOT synthesize, integrate or summarize effectively.
6	SA A D SD	NOT much was gained by taking this course.
7	SA A D SD	The instructor encouraged the development of new viewpoints and appreciations.
8	SA A D SD	I learn more when other teaching methods are used.
9	SA A D SD	The course material seemed worthwhile.
10	SA A D SD	The instructor was excellent.
11	SA A D SD	The instructor demonstrated a thorough knowledge of the subject matter.
12	SA A D SD	I would rather NOT take another course from this instructor.
13	SA A D SD	It was a very worthwhile course.
14	SA A D SD	Some things were NOT explained very well.
15	SA A D SD	The course material was too difficult.
16	SA A D SD	This was one of my poorest courses.
17	SA A D SD	The instructor seemed to consider teaching as a chore or routine activity.
18	SA A D SD	It was quite interesting.
19	SA A D SD	I think that the course was taught quite well.
20	SA A D SD	The course content was excellent.
21	SA A D SD	Some days I was NOT very interested in this course.
22	SA A D SD	It was quite boring.
23	SA A D SD	Overall, the course was good.
24	SA A D SD	
25	SA A D SD	
26	SA A D SD	
27	SA A D SD	
28	SA A D SD	
29	SA A D SD	
30	SA A D SD	
31	SA A D SD	
32	SA A D SD	
33	SA A D SD	
34	SA A D SD	
35	SA A D SD	
36	SA A D SD	
37	SA A D SD	
38	SA A D SD	
39	SA A D SD	
40	SA A D SD	
41	SA A D SD	
42	SA A D SD	
43	SA A D SD	
44	SA A D SD	
45	SA A D SD	
46	SA A D SD	
47	SA A D SD	
48	SA A D SD	
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56	SA A D SD	
57	SA A D SD	
58	SA A D SD	
59	SA A D SD	
60	SA A D SD	
61	SA A D SD	
62	SA A D SD	
63	SA A D SD	
64	SA A D SD	
65	SA A D SD	
66	SA A D SD	
67	SA A D SD	
68	SA A D SD	
69	SA A D SD	

OPTIONAL ITEM SECTION II

70 A B C D E 71 A B C D E 72 A B C D E 73 A B C D E 74 A B C D E 75 A B C D E 76 A B C D E 77 A B C D E

78 A B C D E 79 A B C D E 80 A B C D E 81 A B C D E 82 A B C D E 83 A B C D E 84 A B C D E 85 A B C D E

PLEASE FILL OUT THE OTHER SIDE

DC 30-546D OPTICAL SCANNING FORMS by OPTICAL SCANNING CORPORATION © 1972

C E Q

PLEASE USE THIS SIDE OF THE FORM FOR YOUR PERSONAL COMMENTS ON TEACHER EFFECTIVENESS AND GENERAL COURSE VALUE--THEN TURN IT OVER AND ANSWER THE OBJECTIVE QUESTIONS ON THE OTHER SIDE, USING PENCIL ONLY. YOUR INSTRUCTOR WILL NOT SEE YOUR COMPLETED EVALUATION UNTIL AFTER FINAL GRADES ARE IN FOR YOUR COURSE.

COURSE CONTENT

PLEASE GIVE YOUR COMMENTS ON THE COURSE CONTENT, SUBJECT MATTER, AND ANY PARTICULAR RELEVANCE THIS COURSE HAS HAD TO YOUR AREA OF STUDY.

INSTRUCTORS

WRITE THE NAME OF YOUR PRINCIPAL INSTRUCTOR _____ T.A. _____

WHAT ARE YOUR GENERAL COMMENTS ABOUT THE INSTRUCTOR(S) IN THIS COURSE?

INSTRUCTIONAL OBJECTIVES

WERE THE INSTRUCTIONAL OBJECTIVES CLEARLY STATED FOR THIS COURSE? YES _____ NO _____ COMMENT:

PAPERS AND HOMEWORK

COMMENT ON THE VALUE OF BOOKS, HOMEWORK, AND PAPERS (IF ANY) IN THIS COURSE.

EXAMS

COMMENT ON THE EXAMS (QUIZZES, PRACTICALS) AS TO DIFFICULTY, FAIRNESS, ETC.

GENERAL

1. WHAT IMPROVEMENTS IN THIS COURSE WOULD YOU SUGGEST?

2. PLEASE GIVE YOUR THOUGHTFUL EVALUATION OF THIS COURSE WITH COMMENTS. ARE YOU SATISFIED WITH WHAT YOU GOT OUT OF THIS COURSE? DO YOU CONSIDER IT A VALUABLE EDUCATIONAL EXPERIENCE? SIMPLY A MEANS OF PASSING A REQUIREMENT? OR A DISAPPOINTMENT? PLEASE COMMENT.

PLEASE FILL OUT THE OTHER SIDE

OPTICAL SCANNING FORMS by OPTICAL SCANNING CORPORATION © NEWTOWN, PA. 18940

_____ Student
_____ Instructor
_____ Administrator

INDIVIDUALIZED INSTRUCTION ATTITUDE SCALE

Course _____ Date _____

DIRECTIONS: The following statements refer to opinions regarding individualized instruction. Please circle a number from 1 to 5 indicating the extent to which you agree or disagree with each statement. Think of your reactions to individualized instruction in general.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

A. As compared to classes using traditional instructional approaches, students in individualized classes:

1.	learn more.	1	2	3	4	5
2.	engage in activities more likely to be meaningful to them.	1	2	3	4	5
3.	are more likely to profit from mistakes.	1	2	3	4	5
4.	have more opportunities to experience success.	1	2	3	4	5
5.	are more highly motivated to learn.	1	2	3	4	5

B. As compared to traditional instruction, individualized instruction:

1.	is less likely to provide the common body of knowledge all students need to possess.	1	2	3	4	5
2.	allows students more choice in what they learn.	1	2	3	4	5
3.	emphasizes the processes of learning at the expense of subject matter.	1	2	3	4	5
4.	tends to lower educational standards for most students.	1	2	3	4	5
5.	is not an appropriate technique to use for a wide variety of subjects.	1	2	3	4	5
6.	places too much responsibility on students.	1	2	3	4	5

FACULTY ASSESSMENT DEVICES

INDIVIDUALIZED INSTRUCTION INVENTORY

Course _____ Date _____

DIRECTIONS: Read each of the items below and circle the number at the right which best represents the degree to which the statement applies to your instructional program.

Seldom Applies		Applies About Half the Time		Applies Most of the Time
1	2	3	4	5

1.	Students find and correct their own mistakes.	1	2	3	4	5
2.	Students to determine the reasons for their errors.	1	2	3	4	5
3.	Students have opportunities to check their own work.	1	2	3	4	5
4.	Different objectives are established for each student on the basis of individual interests, abilities, and/or goals.	1	2	3	4	5
5.	Students, with the help of their instructors, select their own topics for study (what they want to learn) within the context of the course.	1	2	3	4	5
6.	Each student decides upon the learning activity he will use in order to accomplish his objective.	1	2	3	4	5
7.	Students select instructional materials and media that appeal to them from the available supply of learning resources.	1	2	3	4	5
8.	Each student, alone or with his instructor, decides upon the competency level he should reach.	1	2	3	4	5
9.	Each student progresses through the course of instruction independently of other class members.	1	2	3	4	5
10.	Students are permitted to enter the course of instruction at designated times during the quarter.	1	2	3	4	5
11.	Students are permitted to complete the course requirements at any time during the quarter.	1	2	3	4	5
12.	Students work at their own rate.	1	2	3	4	5
13.	Diagnostic information is obtained by closely observing and analyzing student work.	1	2	3	4	5
14.	Before suggesting any change of activity, diagnostic attention is given to the particular student and his level of performance.	1	2	3	4	5

15.	The learning activity for each student to use in accomplishing his objective is prescribed or approved by the instructor.	1 2 3 4 5
16.	Students are evaluated on their performance in relation to the stated objective.	1 2 3 4 5
17.	Students are evaluated according to established standards of performance.	1 2 3 4 5
18.	Intra-class groupings are formed to serve a variety of instructional purposes.	1 2 3 4 5
19.	Intra-class groupings are changed frequently.	1 2 3 4 5
20.	Information obtained from pretests is used for placing students in the proper sequence of learning activities.	1 2 3 4 5
21.	Information obtained from previous school records is used for placing students in the proper sequence of learning activities.	1 2 3 4 5
22.	Information obtained from interviews with students is used for placing students in the proper sequence of learning activities.	1 2 3 4 5
23.	Objectives are written to include the desired student behavior, the conditions under which the behavior is shown, and the accepted standard of performance.	1 2 3 4 5
24.	Teacher-made materials such as work sheets, games, transparencies, and charts are used by students.	1 2 3 4 5
25.	At their convenience, students are able to use audio-visual equipment, such as records and record players; tape recordings and tape recorders; film strips, slides, 35 mm films, and projection equipment.	1 2 3 4 5

_____ Student
_____ Instructor
_____ Administrator

INDIVIDUALIZED INSTRUCTION ATTITUDE SCALE

Course _____ Date _____

DIRECTIONS: The following statements refer to opinions regarding individualized instruction. Please circle a number from 1 to 5 indicating the extent to which you agree or disagree with each statement. Think of your reactions to individualized instruction in general.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

A. As compared to classes using traditional instructional approaches, students in individualized classes:

1.	learn more	1	2	3	4	5
2.	engage in activities more likely to be meaningful to them	1	2	3	4	5
3.	are more likely to profit from mistakes	1	2	3	4	5
4.	have more opportunities to experience success	1	2	3	4	5
5.	are more highly motivated to learn	1	2	3	4	5

B. As compared to traditional instruction, individualized instruction:

1.	is less likely to provide the common body of knowledge all students need to possess	1	2	3	4	5
2.	allows students more choice in what they learn	1	2	3	4	5
3.	emphasizes the processes of learning at the expense of subject matter	1	2	3	4	5
4.	tends to lower educational standards for most students	1	2	3	4	5
5.	is not an appropriate technique to use for a wide variety of subjects	1	2	3	4	5
6.	places too much responsibility on students	1	2	3	4	5

ASSESSMENT OF INDIVIDUALIZED INSTRUCTIONAL MATERIALS

DIRECTIONS: For each item, circle the number in the rating column which best describes the quality level according to the following key:

1. Strongly Disagree
2. Disagree
3. Uncertain
4. Agree
5. Strongly Agree

Objectives						
1. Appropriate for my class	1	2	3	4	5
2. Represent different levels of cognitive domain	1	2	3	4	5
3. Important for student to learn	1	2	3	4	5
Basic Concept						
1. Important enough to warrant student's time	1	2	3	4	5
2. Clearly defined	1	2	3	4	5
3. Logically broken into component parts	1	2	3	4	5
4. Appropriate for my class	1	2	3	4	5
Activities						
1. Relate to objectives and basic concepts (no irrelevant activities)	1	2	3	4	5
2. Provide practice for behavior(s) indicated in the objective	1	2	3	4	5
3. Clearly stated	1	2	3	4	5
4. Appropriate for the group (developmental and intellectual level)	1	2	3	4	5
5. Include a variety from which a student may choose	1	2	3	4	5
6. Possible within classroom facilities	1	2	3	4	5
7. Include group as well as individual experiences	1	2	3	4	5
8. Provide opportunity for something in addition to reading and writing answers	1	2	3	4	5

Resource Materials

1.	Current and up-to-date	1	2	3	4	5
2.	Available within reasonable cost limits and difficulty in attaining	1	2	3	4	5
3.	Include real objects to see and/or use	1	2	3	4	5
4.	Include a variety of materials	1	2	3	4	5
5.	Reading level appropriate for student	1	2	3	4	5

Evaluation

1.	Pre-test - represents all objectives	1	2	3	4	5
	measures at level of objectives	1	2	3	4	5
	can be used for assessment in determination of activities	1	2	3	4	5
	includes scoring key	1	2	3	4	5
2.	Self evaluation devices are included in student material	1	2	3	4	5
3.	Post-test - represents all objectives	1	2	3	4	5
	measures at level of objectives	1	2	3	4	5
	different from pre-test	1	2	3	4	5
	includes scoring key	1	2	3	4	5

ADMINISTRATOR ASSESSMENT DEVICES

_____ Student
_____ Instructor
____ Administrator

INDIVIDUALIZED INSTRUCTION ATTITUDE SCALE

Course _____ Date _____

DIRECTIONS: The following statements refer to opinions regarding individualized instruction. Please circle a number from 1 to 5 indicating the extent to which you agree or disagree with each statement. Think of your reactions to individualized instruction in general.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

A. As compared to classes using traditional instructional approaches, students in individualized classes:

1.	learn more	1	2	3	4	5
2.	engage in activities more likely to be meaningful to them	1	2	3	4	5
3.	are more likely to profit from mistakes	1	2	3	4	5
4.	have more opportunities to experience success	1	2	3	4	5
5.	are more highly motivated to learn	1	2	3	4	5

B. As compared to traditional instruction, individualized instruction:

1.	is less likely to provide the common body of knowledge all students need to possess	1	2	3	4	5
2.	allows students more choice in what they learn	1	2	3	4	5
3.	emphasizes the processes of learning at the expense of subject matter	1	2	3	4	5
4.	tends to lower educational standards for most students	1	2	3	4	5
5.	is not an appropriate technique to use for a wide variety of subjects	1	2	3	4	5
6.	places too much responsibility on students	1	2	3	4	5

COST-BENEFIT ANALYSIS

The cost-benefit analysis compares program costs to quantitative program outcomes and benefits. It is a way of justifying the money expended by the benefits received.

Requests for further information regarding the use and cost of this evaluation procedure should be directed to the address given below.

Meyer, Crawford, and Klaurens. Coordination in Cooperative Vocational Education.
Charles E. Merrill Publishing Company
Columbus, Ohio
Copyright, 1975

COST-BENEFIT ANALYSIS

Title of Program _____
Time Period from _____ to _____

COST FACTORS	PROJECT COST	ANNUAL COST
Total Program Cost		
Total Outside Funding		
Net Program Cost (Local Funds)		
Net Cost Per Student Enrolled		
Net Cost Per Student Placed		
Average Annual Cost Per Student Enrolled in Other Programs in the School		

OUTCOME FACTORS	PROJECTED GOALS (Numbers)	ACTUAL OUTCOMES (Numbers)
Student Enrollment		
Students Placed in Jobs (6Mos. after Completion)		
Students Earning Over $500 per Month		
Students Rated Above Average by Employers		
Students Who Rated the Program "Highly Beneficial"		
Students Who are "Very Satisfied" in Present Job		
Parents Who Rated the Program as "Very Beneficial"		
(Other Factors Taken from Program Goals)		

In Meyer, Warren G., Crawford, Lucy, and Klaurens, Mary K. Coordination in Cooperative Vocational Education. Columbus, Ohio: Charles E. Merrill Publishing Company, Copyright 1975.

EMPLOYER ASSESSMENT DEVICES

EMPLOYEE PERFORMANCE

NOTE: Tasks to be included on this form should be those identified via a task analysis for your particular occupational area. If this has not been done, such an analysis would be appropriate.

DIRECTIONS: This rating scale is designed for use by employers as they assess the amount of skill actually demonstrated by the employee on the job. Please rate the employee's performance for the tasks identified below according to amount of skill demonstrated as follows:

L - Limited Skill - Supervision is required

M - Moderate Skill - Minimum supervision required

S - Skilled - Works independently

EXAMPLES:

1.	Hangs doors, using butt hinges.	L	M	S
2.	Reads a thermometer accurately.	L	M	S
3.	Types 50 words per minute accurately.	L	M	S
4.	Measures using architect's mechanical, engineer's and civil engineer's scales.	L	M	S
5.	Sews welts into cushion border.	L	M	S

EMPLOYMENT CHECKLIST

DIRECTIONS: Please check the item that relates to the employment status of the employee identified below.

Employee _____ Date _____ Job _____

The employee:

1. Is currently employed in this firm _____Yes
   _____ No (complete 2 or 3)

   If currently employed, the employee's performance is

   _____ above average

   _____ average

   _____ below average

2. If the employee has been discharged, please indicate the reason(s).

   _____ Job performance was below standard. _____ Insubordination.

   _____ Could not work with others. _____ Job was terminated.

   _____ Was not dependable.

   _____ Other (please specify) _____

3. Has resigned.

   If the employee has resigned, please indicate the reason(s).

   _____ Lack of job satisfaction. _____ Insufficient wages.

   _____ Changed occupations. _____ Moved.

   _____ Not known.

   _____ Other (please specify) _____

ASSESSMENT OF EMPLOYEE TRAITS

Will you please complete the following and return within 5 days?

Report on _____ Date _____

Please check the statements under each item that would best describe the student.

Attitude Toward Criticism

_____ Asks for constructive criticism
_____ Accepts criticism, profits by suggestions
_____ Accepts criticism, does nothing about it
_____ Resents criticism

Attitude Toward Work

_____ Positive approach, wants to succeed
_____ Enjoys work and shows promise
_____ "I don't care" attitude prevails at times
_____ Negative approach, appears bored with the job

Cooperation

_____ Cooperates willingly at all times
_____ Usually cooperates with others
_____ Often indicates resentment toward cooperating with others
_____ Unwilling to cooperate with others

Courtesy

_____ Always considerate and courteous
_____ Usually is considerate and polite
_____ Polite to customer but inconsiderate of fellow workers
_____ Inconsiderate of others, rude to others

Initiative

_____ Energetic, capable and willing to go beyond mere assigned duties
_____ Performs routine work accurately
_____ Needs occasional prodding to complete routine
_____ Fails to complete expected work

Knowledge of Job

_____ Understands the job thoroughly
_____ Is interested and desires to learn more about job
_____ Listens to instructions but does not seem to understand
_____ Has little understanding of the job, does not try to learn

Performance on Job

_____ Performs duties with high degree of accuracy
_____ Usually performs skillfully and with relative ease
_____ Listens to instructions but fails to follow through
_____ Extremely careless and inaccurate in job performance

Personal Appearance

_____ Attractive, neat, and appropriately groomed at all times
_____ Usually is neat and attractive
_____ Frequently neglects personal appearance
_____ Must improve personal appearance to maintain the job

Realiability

_____ Can always be depended upon and extremely conscientious
_____ Can usually be depended upon, conscientious
_____ Completes job but requires close supervision
_____ Unreliable

Work Habits

_____ Efficient, manages time and energy well
_____ Industrious but not always efficient
_____ Frequently wastes time and energy
_____ Fails to manage time and energy well, lazy

Additional comments:

Signature _____

MINNESOTA SATISFACTORINESS SCALES
Copyright 1965

Description. The Minnesota Satisfactoriness Scales (MSS) are designed to measure an employee's satisfactoriness on a job. The MSS is usually completed by the employee's supervisor who evaluates the employee on 28 items concerning the employee's behavior on the job. The MSS provides scores on five scales: Performance, Conformance, Dependability, Personal Adjustment and General Satisfactoriness.

Availability. Requests for purchase of the MSS should include a description of the qualifications of the prospective user. The MSS is available for use only under the supervision of qualified psychologists.

Copies are available at the following prices (minimum order is 30 copies):

30 to 499 copies . . . . . 15¢ each

500 or more copies . . . . . 14¢ each

All postage is additional. Shipment is made by fourth-class mail unless otherwise specified. Prices are subject to change without notice.

Address orders to:

Vocational Psychology Research
Elliott Hall
University of Minnesota
Minneapolis, Minnesota 55455

Phone: 611-376-7377

DATA SUMMARIZATION FORMS

III. 1. PROFILE FOR ATTITUDES TOWARD INDIVIDUALIZED INSTRUCTION

DIRECTIONS: To analyze the ratings on the Individualized Instruction Attitude Scale, transfer the numerical rating for each item to the corresponding blank below. Add the ratings for each factor. Enter these totals beside the numerals to the right. These totals can then be compared to the criteria levels previously established in task 2.4 in the model. Possible total scores for each factor are shown in parentheses.

I. Outcomes (25)

B1. Common body of knowledge . . . . . _____

B3. Processes of learning . . . . . _____

B4. Lower educational standards . . . . . _____

B5. Not for wide variety of subjects . . . . . _____

B6. Too much responsibility . . . . . _____ I. _____

II. Effect upon Students (30)

A1. Learn more . . . . . _____

A2. Activities more meaningful . . . . . _____

A3. Profit from mistakes . . . . . _____

A4. Experience success . . . . . _____

A5. Highly motivated to learn . . . . . _____

B2. Allows more choice . . . . . _____ II. _____

III. 2. PROFILE FOR INDIVIDUALIZATION

DIRECTIONS: To analyze the ratings on the Individualized Instruction Inventory, transfer the numerical rating for each item to the corresponding blank below. Add the ratings for each factor. Enter these totals beside the numerals to the right. These totals can then be compared to the criteria levels previously established in task 2.4 in the model. Possible total scores for each factor are shown in parentheses.

I. Self-Evaluation (15)

1. Find and correct own mistakes . . . . . _____
2. Determine reasons for errors . . . . . _____
3. Check own work . . . . . _____ I. _____

II. Student Involvement in Decision Making (25)

4. Objectives based on individual interests . . . . _____
5. Select own topics for study . . . . . _____
6. Decides upon learning activity . . . . . _____
7. Select instructional material and media . . . . . _____
8. Decides upon competency level to reach . . . . . _____ II. _____

III. Flexibility of Pacing (20)

9. Progresses through course independently . . . . . _____
10. Permitted to enter course at designated time . . _____
11. Permitted to complete course at any time . . . . _____
12. Work at own rate . . . . . _____ III. _____

IV. Types of Evaluation (25)

13. Diagnostic information obtained . . . . . _____
14. Diagnostic information gained from student and performance level . . . . . _____
15. Learning activity prescribed or approved by instructor . . . . . _____

16. Evaluate performance in relation to objective . . _____

17. Evaluated by established standards of performance . . . . . _____ IV. _____

V. Intra-Class Groupings (10)

18. Serve variety of instructional purposes . . . . . _____

19. Changed frequently . . . . . _____ V. _____

VI. Information for Placement of Students (15)

20. Pretests used for placing students . . . . . _____

21. Previous school records used for placing students . . . . . _____

22. Interviews with students used for placement . . . _____ VI. _____

VII. Materials and Equipment (15)

23. Objectives include behavior, conditions, and performance . . . . . _____

24. Teacher-made materials used by students . . . . . _____

25. Equipment used at students' convenience . . . . . _____ VII. _____

IV. SUGGESTIONS FOR CRITERIA LEVELS AND SUMMARIZATION OF DATA

Assessment Devices	Criteria Levels
Achievement Tests	Ninety per cent of the students reach ninety per cent on all the objectives
Reactions to Course, Instructor, and Instructional Materials	*Establish acceptable total scores for each section
Illinois Course Evaluation	Establish acceptable score
Individualized Instruction Attitude Scale	*Establish acceptable total scores for each factor
Individualized Instruction Inventory	*Establish acceptable total scores for each factor
Assessment of Individualized Instructional Materials	*Establish acceptable total scores and sub-scores
Cost-Benefit Analysis	Examine actual cost and outcomes
Employee Performance	Identify strengths and weaknesses
Assessment of Employee Traits	Identify strengths and weaknesses
Minnesota Satisfactoriness Scale	Refer to the users' manual

*Note - In making a decision about the minimum score, you may wish to consider a minimum acceptable level for each item as well as a minimum total score. For example, ratings of less than '3' may not be acceptable on <u>any</u> item.

APPENDIX F

SCHEDULE FOR TASK FORCE MEETING AND LIST OF TASK FORCE MEMBERS

THE HOME ECONOMICS CENTER FOR RESEARCH
THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

and

THE DIVISION OF OCCUPATIONAL EDUCATION
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION

Task Force Meeting
Alderman Lounge, Elliott University Center
The University of North Carolina at Greensboro

September 12, 1975

SUBJECT: The Development of a Model, Evaluative Measures, and Guidelines Which Can Be Used by Education Decision Makers to Assess the Effectiveness of the Individualized Instructional Approaches in Occupational Education.

OBJECTIVES FOR THE MEETING:

1. To review data collected in Phase I of the project.
2. To determine adequacy of the individualized instruction scale for use in assessing implementation of individualized instructional approaches.
3. To critique a model proposed for use in determining the effectiveness of individualized instructional procedures.
4. To examine types of evaluative measures which could be used in the assessment procedure.
5. To determine strategies for dissemination of research findings.

<u>September 12, 1975</u>

9:00 - 9:30 Coffee and Introductions

9:30 - 11:00 Overview of the Project . . . . . Mildred Johnson

Group Sessions -- Reaction to Data Collected in Phase I . . . . . Gwen Griffin

11:00 - 11:45 A Proposed Evaluation Model for Use in Assessing Individualized Instructional Approaches in Occupational Education . . Barbara Clawson

11:45 - 12:30	Group Discussion - Critique of the Proposed Model	
12:30 - 1:45	LUNCH - Dogwood Room, Elliott University Center	
1:45 - 3:30	Plan for Data Collection	Barbara Clawson
	Group Sessions -- The Examination of Instrumentation to be Used in Assessing Individualized Instructional Approaches	Gwen Griffin
3:30 - 4:00	Strategy for Dissemination of Research Findings	Mildred Johnson
4:00	ADJOURN THANKS!	

TASK FORCE MEMBERS

Marvin Allen, Chairman. Business Education, Forsyth Technical Institute, Winston-Salem, North Carolina.

Bobby L. Anderson, Dean of Diploma Programs, Department of Community Colleges, State Department of Public Education, Raleigh, North Carolina.

Harold Bowers, Chairman. Electrical Technology, Beaufort County Technical Institute, Washington, North Carolina.

Dr. Jack Cherry, Director of Faculty. Beaufort County Technical Institute, Washington, North Carolina.

Dr. Jesse Clemmons, Consultant. Occupational Research Unit, State Department of Public Education, Raleigh, North Carolina.

James Z. Daniel, Horticulture Instructor. Wilkes Community College, Wilkesboro, North Carolina.

James H. Ellerbe, Director of Staff Development. Department of Community Colleges, State Department of Public Education, Raleigh, North Carolina.

James H. Hamlett, Assistant Director of Staff Development. Department of Community Colleges, State Department of Public Education, Raleigh, North Carolina.

Ruby Hinson Haney, Allied Health Instructor. Haywood Technical Institute, Clyde, North Carolina.

Fred W. Manley, Assistant Director. Occupational Research Unit, State Department of Public Education, Raleigh, North Carolina.

Dr. Wilbor C. Ormond, Educational Development Officer. James Sprunt Institute, Kenansville, North Carolina.

Dr. Charles H. Rogers, Director. Occupational Research Unit, State Department of Public Education, Raleigh, North Carolina.

Mrs. Madge Schwarz, Chairman. Early Childhood Education, Guilford Technical Institute, Jamestown, North Carolina.

Danny J. Simmons, Consultant. Occupational Research Unit, State Department of Public Education, Raleigh, North Carolina.

SUMMARY OF

AN ASSESSMENT PROCEDURE TO DETERMINE THE EFFECTIVENESS OF INDIVIDUALIZED INSTRUCTION APPROACHES IN TECHNICAL INSTITUTES AND COMMUNITY COLLEGES IN NORTH CAROLINA

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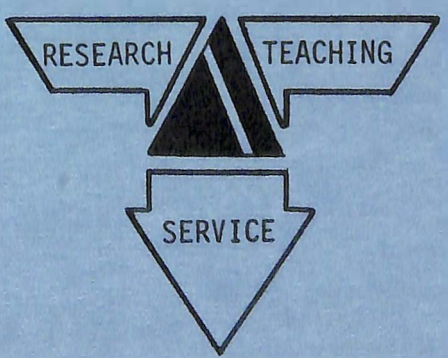

Home Economics Center for Research
University of North Carolina at
Greensboro, North Carolina
Technical Report No. 14
April, 1976

SUMMARY OF AN ASSESSMENT PROCEDURE TO DETERMINE THE EFFECTIVENESS OF INDIVIDUALIZED INSTRUCTION APPROACHES IN TECHNICAL INSTITUTES AND COMMUNITY COLLEGES IN NORTH CAROLINA

A recent trend in instructional approaches in North Carolina community colleges/ technical institutes has been the use of individualized instruction approaches to meet the varied needs of students. Although large amounts of money have been provided for the development of individualized instruction, evaluative data concerning its effectiveness are lacking. Systematic evaluation can serve as an aid to developing individualized instruction approaches, as a basis for decision making, and as an essential tool for decision makers. Recognizing these facts, the Department of Home Economics Education at the University of North Carolina at Greensboro, funded by the Occupational Research Unit of the State Department of Public Education, conducted a study related to the assessment of individualized instruction approaches.

The study was conducted in two phases. During Phase I, a survey was conducted of occupational education instructors who moderately to highly individualized instruction to determine their practices and attitudes toward individualized instruction. Phase II included the development of a model, evaluative measures, and guidelines for use in assessing individualized instruction approaches.

In Phase I of the study, a master list of 1771 occupational education instructors from 57 community colleges-technical institutes was compiled. All of the instructors were then requested to list courses taught and to indicate on a scale from one to five the degree to which each course was individualized, based on a given definition of individualized instruction. In spite of rigorous efforts to obtain responses, only 893 instructors replied, providing a 50 per cent return. Respondents were categorized into eleven occupational areas: agriculture, automotive, business, data processing, distribution, electronics, health, home economics, law and public safety, technical operations, and trade and industry.

Participants for the next part of the study were selected from among the 606 occupational education instructors in North Carolina who had indicated that classes they taught were moderately to highly individualized. A random sample was drawn from those instructors in the areas of business, health, and trade and industry, but all instructors who indicated a moderate to high degree of individualization were surveyed in the other eight occupational areas due to the smaller numbers available in each of these areas.

An Individualized Instructory Inventory which was designed to determine demographic data, practices, and attitudes of occupational education instructors was distributed to the instructors. Inventories were returned by 77 per cent of the 354 instructors in the sample. Percentages of responses from instructors in different occupational areas were similar.

Demographic data obtained from the respondents were summarized. The percentages of responses were computed at each of the five levels of the scale for each of the 43 items in Part II (practices) and 25 items in Part III (attitudes) of the inventory. Discriminant analyses were used to determine which items were most useful in differentiating between those respondents who moderately to highly individualized instruction; which demographic variables were most useful in discriminating between those with high and low practice scores (Part II) and those with positive versus negative attitudes toward individualized instruction (Part III); and to determine the relationship between scores on Part II (practices) and Part III (attitudes).

In Phase II, an assessment model for use in evaluating individualized instruction approaches was developed based on a review of the literature. Evaluative measures that could be used to obtain the data described in the model were developed and/or selected. A factor analysis was made of the items in the Individualized Instruction Inventory developed in Phase I since the instrument was to be included as one of the evaluative measures and factor scores are more reliable than scores on single items. Guidelines were written for use in implementing the assessment model.

Major Findings

Phase I

Demographic Data

1. Respondents were representative of different age categories.

2. Sixty-five per cent of the respondents were male.

3. Only one-fourth of the respondents had received some credits beyond the bachelor's degree while less than three per cent held doctorates.

4. Almost 40 per cent of the respondents had received training in the use of individualized instruction through in-service training programs or workshops and 19 per cent through college or university courses.

5. Almost one-fourth of the instructors had used an individualized approach to instruction for one year or less.

6. Forty three per cent of the respondents had five years or less experience in business or industry.

Data Related to Specific Aspects of Individualized Instruction

1. Over 70 per cent of the instructors individualized instruction for all students in the class and indicated that materials reflected varying levels of difficulty.

2. Over one-third of the respondents reported that materials reflecting varying levels of difficulty were available for the same learning activity some of the time.

3. Particular units within the course were individualized by over 44 per cent of the respondents, rather than the entire course (35 per cent), or selected lessons (10 per cent).

4. In order to individualize instruction more effectively, respondents indicated, ranked from the highest percentage of affirmative responses to the lowest, a need for more time, more training, smaller classes, more equipment, more paraprofessional help, and more cooperation from the school administration.

Practices Related to Individualized Instruction

1. Over 75 per cent of the instructors reported that students were encouraged to check their own work and determine reasons for their errors, were evaluated on their performance in relation to stated objectives and established standards of performance, and that the instructor worked with students and/or groups on a one-to-one basis.

2. Approximately 50 per cent of the respondents indicated that students worked at their own rate of speed, used teacher-made materials, worked on different assignments, and that work was evaluated when students believed that their work was ready for evaluation.

3. Less than 20 per cent of the instructors indicated that students were allowed to select the learning activities for use in accomplishing the objectives or to select what they wanted to learn within the context of the course, that information from school records was used for placing students in the sequence of learning activities, that paraprofessional personnel were available, and that students may enter the course of instruction at any time during the semester.

Attitudes Toward Individualized Instruction

1. Two-thirds or more of the instructors indicated that they believed that students in individualized classes have more opportunities to experience success, are more likely to profit from mistakes, engage in activities more likely to be meaningful to them, are more involved in decisions made for and about the class, and are more likely to develop a positive attitude toward learning than students in traditional classes. In addition, it was reported that individualized instruction allows students more choice in what they learn and that it requires more instructor time.

2. Less than 20 per cent of the respondents agreed that students in individualized classes lack incentive to learn, work under more pressure, and are more likely to be bored. Less than 20 per cent also agreed that individualized instruction places too much responsibility on students and tends to lower educational standards for most students.

Discriminant Analysis

1. Twenty-one items representing practices used by instructors in individualizing instruction were useful in differentiating between those with high and low attitude scores.

2. Eight attitude statements were effective in discriminating among respondents with low, average, and high practice scores.

3. Demographic variables useful in differentiating between instructors with high and low attitude scores, in the order of importance, were number of years using individualized approaches, sex, type of training in individualizing instruction approaches, and years of teaching experience. The instructors with the most positive attitude scores were more likely to be women, who had used the individualized approach a number of years, had received training in the use of individualized instruction through a college or university course rather than through in-service training, and had taught a relatively short period of time.

4. Demographic variables useful in discriminating between those respondents with high, average and low practice scores were educational background, number of years using individualized instruction, type of training, and age. Instructors with higher practice scores were likely to have less professional training, to have used individualized instruction longer, to have received training in individualized instruction via a college or university course, and to be older.

Phase II

Factor Analysis. A factor analysis was made of the items relating to practices in Part II of the Individualized Instruction Inventory since the instrument was to be used as one of the evaluative measures to accompany the model. Seven factors were derived from the analysis and varimax rotation of the 43 items, ranging in size from two to five items. The factors were labeled: self-evaluation, student involvement in decision making, flexibility of pacing, types of evaluation, intra-class groupings, information base for placement of students, and materials and equipment.

Two factors were derived from the factor analysis and varimax rotation of the 25 items in Part III (attitudes) of the inventory. Factor I, degree of learning, and Factor II, student involvement, contained five and six items, respectively.

Discriminant Analysis. Of the sixteen items which were useful in discriminating between those who rated themselves as highly or moderately individualizing instruction, nine were also included in the factor analysis. This gave additional support for using the factor analysis results in the revision of the Inventory.

Model, Evaluative Measures, and Guidelines. Following an extensive review of literature, a model was developed to assess individualized instruction approaches in occupational education at the community college and technical institute level. The four phases of the assessment model with tasks to be completed within each phase are presented on page 10.

Types of information needed and sources from which it could be obtained were identified. Instruments were either selected or developed for use in collecting the desired data. Evaluative measures that may be purchased for use in data collection are the Illinois Course Evaluation (CEQ)[1] and the Minnesota Satisfactoriness Scales.[2] The remainder of the instruments included for use with the model were developed during the study.

[1]Measurement and Research Division of the Office of Instructional Resources, 307 Engineering Hall, University of Illinois, Urbana, Illinois, 61801.

[2]Vocational Psychology Research, Elliott Hall, University of Minnesota, Minneapolis, Minnesota, 55455.

ASSESSMENT MODEL

DELINEATE INFORMATION	PLAN FOR DATA COLLECTION	OBTAIN INFORMATION	PROVIDE INFORMATION FOR DECISION MAKING
1.	2.	3.	4.1
Set Boundaries	Determine Types of Information	Collect Data	Prepare Report
1.1	2.1	3.1	4.1
Specify Decisions	Identify Sources of Information	Organize and Analyze Data	Make Decisions
1.2	2.2	3.2	4.2
Identify Background Information	Select Data Collection Devices		
1.3	2.3		
	State Minimum Criteria Levels		
	2.4		

After the model was developed and instruments were selected or developed for use in data collection, a Task Force meeting was held to critique the model and evaluative measures. Members of the Task Force were instructors from various occupational areas in community colleges/technical institutes and selected state department personnel from the Occupational Research Unit and the Department of Community Colleges. Suggestions and recommendations made by the Task Force were helpful in making revisions.

Following the development of the model and the selection and/or construction of instrumentation, guidelines were written for use in implementing the assessment procedure. These provided further clarification of the tasks to be completed within each phase of the model.

Field Test of the Model, Evaluative Measures, and Guidelines. The model and guidelines for implementation were reviewed by the heads of two occupational education departments and selected instructors within those two departments in two technical institutes in North Carolina. Minor revisions were made in the guidelines on the basis of their suggestions.

Selected evaluative measures were field tested by students in 20 occupational education classes in the two technical institutes. Three hundred and eleven students responded to the Reactions to Course, Instructor, and Instructional Materials instrument. Analysis of the items indicated that this instrument could be useful in assessing instructor attributes, courses, and instructional materials. The Individualized Instruction Attitude Scale was completed by 37 students and five

instructors completed the Individualized Instruction Inventory. Scores for each factor for each instructor were derived for the Individualized Instruction Inventory and for each student on the Individualized Instruction Attitude Scale. The resulting range of scores for each of the factors would appear to indicate that these instruments would be useful in assessing degree to which instructors individualize instruction and attitudes of students toward individualized instruction.

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